



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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January 20, 1989

Mr. Peter A. Rutledge, Chief
Division of Federal Programs
Office of Surface Mining
Brooks Towers
1020 Fifteenth Street
Denver, Colorado 80202


Dear Mr. Rutledge:

Re: State Decision Document and Technical Analysis, Andalex Resources, Inc., Centennial Project, Underground Lease Additions, ACT/007/019, Folder #2, Carbon County, Utah

Enclosed is Utah's Decision Document and Technical Analysis for the proposed underground lease additions to the Centennial Project. Andalex Resources, Inc. is proposing to add three federal lease modifications, one new federal lease and one new fee lease to the already permitted area at the Centennial Project. The total area of the proposed lease additions is 998 acres.

Since these proposed additions will be mined as underground extensions of existing mines no new surface disturbance will occur, and the Division has done an abbreviated Technical Analysis, analyzing compliance with only those sections of the performance standards which are pertinent to the applicant's proposal.

Page 2
Mr. Peter A. Rutledge
January 20, 1989

The Division has found that, with the addition of three stipulations, the applicant's proposal is adequate to comply with the requirements of the Utah program and SMCRA. We request that you concur with this assessment and expediently forward the package to Washington for approval. If you have any questions, please contact Susan Linner, Permit Supervisor, of my staff.

Best regards,



Dianne Nielson
Director

c1
Enclosure
cc: M. Glasson, Andalex
B Team
BT45/155-156

UTAH DIVISION OF OIL, GAS AND MINING
STATE DECISION DOCUMENT AND
TECHNICAL ANALYSIS

Andalex Resources, Inc.
Centennial Project
Underground Lease Additions
ACT/007/019
Carbon County, Utah

January 18, 1989

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 - Division of State History, January 18, 1989
 - Division of Wildlife Resources, November 4, 1988
 - Resource Development Coordinating Committee,
November 30, 1988
 - Office of Surface Mining Reclamation and Enforcement
Relatedness Report, January 18, 1989

ADMINISTRATIVE OVERVIEW

Andalex Resources, Inc.
Centennial Project
Underground Lease Additions
ACT/007/019
Carbon County, Utah

January 18, 1989

BACKGROUND

Andalex Resources, Inc. (ARI) has proposed two separate underground lease additions to its currently approved permit area for the Centennial Project.

The Mining and Reclamation Plan (MRP) for the Centennial Project was approved by the Office of Surface Mining in November of 1981 and by the Division of Oil, Gas and Mining (DOGM) in January of 1982. The originally approved MRP consisted of 2,240 acres of private and federal coal leases. On May 20, 1986, ARI was issued a permit by DOGM for a 120-acre federal emergency lease. On March 2, 1987, a new five-year permanent program permit was issued incorporating the emergency lease, for a total permitted acreage of 2,360 acres.

In October of 1981, Federal lease numbers U-010581, SL-063058 and SL-027304 were modified by the Bureau of Land Management to include an additional 436 acres. In March of 1988, ARI requested that these three lease modifications be incorporated into the permitted area. In August of 1988, ARI requested that one additional 320 acre federal lease (U-05067) and one 240 acre fee lease be added to the permitted area. This Decision Document addresses the additions of the three lease modifications, the new federal lease, and the new fee lease to the permitted area.

Currently ARI operates two mines, the Pinnacle and Apex, in the Gilson and Lower Sunnyside seams, respectively. A third mine, the Aberdeen, approved in the original MRP to access the Aberdeen Seam, has yet to be developed. ARI is currently preparing to develop the Aberdeen Mine, which will require the addition of the lease modification areas to the permit. The two new leases will be mined as part of the Pinnacle Mine.

ANALYSIS

No additional surface disturbance is proposed in relation to the addition of these underground leases and lease modifications. Therefore this Technical Analysis (TA) addresses specifically effects related to the underground mining of these leases and lease modifications. It is DOGM's opinion that the sections addressed in the following TA differ significantly from the mining and reclamation practices and procedures which were approved in the five-year permit renewal. Those sections not addressed here were determined to be in compliance with the approved MRP and have been addressed in previous TA's.

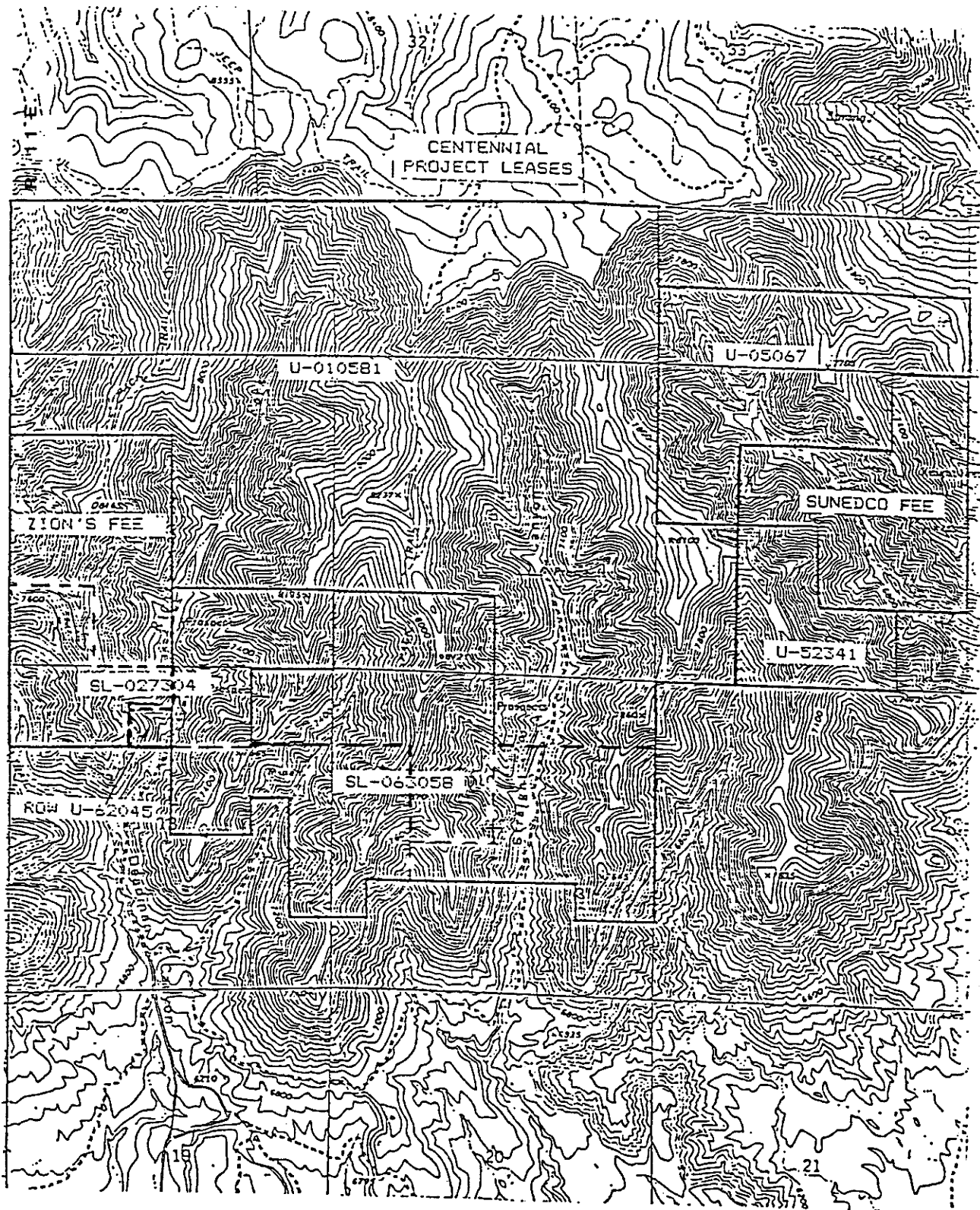
Additional surface disturbance in the amount of 1.68 acres will be done to facilitate development of the Aberdeen Mine. In a separate permitting action, DOGM is handling the additional surface disturbance as an amendment/incidental boundary change to the existing permit. Correspondence regarding this amendment can be found in DOGM's files and the subject is not addressed further in this document.

RECOMMENDATION

ARI has demonstrated that mining of the lease modifications and new leases can be done in conformance with the Surface Mining Control and Reclamation Act, and the corresponding Utah Act and performance standards. The Bureau of Land Management has approved the mining plans for the new federal lease and lease modifications. No substantive issues were raised during the review process or the public comment periods. It is therefore recommended that approval be given for the addition of these underground leases and lease modifications to the permitted area and to the currently approved five year permanent program mining permit, with the stipulations delineated in this Decision Document.

LOCATION MAP
ANDALEX RESOURCES, INC.

T. 13 S.



----- Lease Modification Boundaries
——— Lease Boundaries

PERMITTING CHRONOLOGY

Andalex Resources, Inc.
Centennial Project
Underground Lease Additions
ACT/007/019
Carbon County, Utah

3/11/88 Andalex Resources Inc. (ARI) submits updated Mining and Reclamation Plan (MRP) including addition of three federal lease modifications to the permit area.

3/1-22/88 ARI publishes notice of intent to add the lease modifications to the permit area weekly for four consecutive weeks in the Price Sun Advocate.

4/21/88 Comment period expires with no comments received.

8/9/88 ARI submits plan to incorporate two new leases, one federal and one fee, into the permit area.

8/2-23/88 ARI publishes Notice of Intent to add the new leases to the permit area weekly for four consecutive weeks in the Price Sun Advocate.

9/22/88 Second comment period expires with no comments received.

10/17/88 DOGM forwards notice of a complete permit application for all lease additions to other agencies.

12/19/88 ARI submits proof of right of entry on Lease U-05067

1/20/89 DOGM forwards State Decision Document and Technical Analysis to Office of Surface Mining Reclamation and Enforcement for concurrence and Secretarial signature.

MINE PLAN INFORMATION

Mine Name: Centennial Project State ID: ACT/007/019

Operator: Andalex Resources, Inc. County: Carbon

Controlled By: _____
Contact Person(s): Mike Glasson Position: _____
Telephone:: (801) 637-5385

New/Existing: Both Mining Method: Room and Pillar

New Federal Lease No(s):: U-010581 (Mod.), U-063058 (Mod.), SL-027304 (Mod.), U-05067

Legal Description(s): U-010581: T 13S, R. 11E Section 17: S 1/2 NE 1/4, N 1/2 NE 1/4 SW 1/4, NE 1/4 SE 1/4, N 1/2 NW 1/4 SE 1/4;
U-063058: T 13S, R 11E, Section 17: SW 1/4 NW 1/4, NE 1/4 NW 1/4 SW 1/4, W 1/2 NW 1/4 SW 1/4, Section 18: E 1/2 SE 1/4 NE 1/4, NW 1/4 SE 1/4 NE 1/4 SW 1/4 NE 1/4, E 1/2 NE 1/4 SE 1/4;
SL-027304: T 13S, R 11E, Section 7: Lot 4, Section 18: Lot 1, N 1/2 NE 1/4 NW 1/4, SW 1/4 NE 1/4 NW 1/4;
U-05067: T. 13S, R 11E, Section 4: S 1/2, Section 9: NW 1/4 NE 1/4, W 1/2 NW 1/4, NE 1/4 NW 1/4

Other New Leases (identify): Sunedco Fee Lease

Legal Description(s): T. 13S, R. 11 E. Section 9: SE 1/4 NW 1/4, S 1/2 NE 1/4, NE 1/4 NE 1/4, N 1/2 SE 1/4

Ownership Data:

<u>Surface Resources (acres)</u>	<u>Existing Permit Area</u>	<u>Proposed Permit Area</u>	<u>Total Life Of Mine Area</u>
Federal	<u>2170</u>	<u>758</u>	<u>2918</u>
State			
Private	<u>200</u>	<u>240</u>	<u>440</u>
Other			
TOTAL	<u>2370</u>	<u>998</u>	<u>3368</u>

Coal Ownership (acres):

Federal	<u>2160</u>	<u>758</u>	<u>2918</u>
State			
Private	<u>200</u>	<u>240</u>	<u>440</u>
Other			
TOTAL	<u>2360</u>	<u>998</u>	<u>3358</u>

<u>Coal Resource Data</u>	<u>Total Reserves</u>	<u>Total Recoverable Reserves</u>
Federal	_____	_____
State	_____	_____
Private	_____	_____
Other	_____	_____
TOTAL	52.5 Million Tons	35.5 Million Tons

Recoverable Reserve Data	Name	Thickness	Depth
Seam	Aberdeen	4-13 ft.	1060 ft.
Seam	Gilson	4-8 ft.	800 ft.
Seam	Lower Sunnyside	4-6 ft.	600 ft.
Seam			
Seam			
Seam			

Mine Life: 28 years
Average Annual Production: 1.5 Million Percent Recovery: 68%
Date Projected Annual Rate Reached: 1990
Date Production Begins: 1980 Date Production Ends: 2008
Reserves Recoverable By: (1) Surface Mining: _____
(2) Underground Mining: X
Reserves Lost Through Management Decisions: Unknown
Coal Market: Unknown

Modifications that have been approved:

Date:

[illegible]

FINDINGS

Andalex Resources Inc.
Centennial Project
Underground Lease Additions
ACT/007/019
Carbon County, Utah

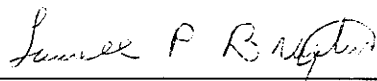
January 18, 1989

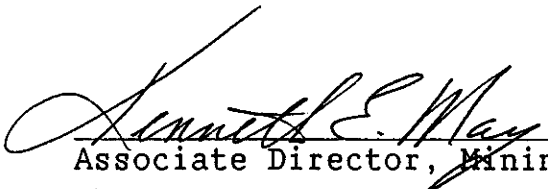
1. The revised plan and the permit application are accurate and complete and all requirements of the Surface Mining Control and Reclamation Act (the "Act"), and the approved Utah State Program have been complied with (UMC 786.19{a}).
2. No additional surface reclamation is required since the additional permit area will be mined as underground extensions of existing mines. There will be no new surface facilities.
3. The assessment of the probable cumulative impacts of all anticipated coal mining and reclamation activities in the general area on the hydrologic balance has been made by the regulatory authority. The Mining and Reclamation Plan (MRP) proposed under the application has been designed to prevent damage to the hydrologic balance in the permit area and in associated off-site areas (UMC 786.19 {c} and UCA 40-10-11 {2}{c}) (See Cumulative Hydrologic Impact Analysis (CHIA) following this Findings Document).
4. The proposed lands to be included within the permit area are:
 - a. not included within an area designated unsuitable for underground coal mining operations (MRP, p. 17);
 - b. not within an area under study for designated lands unsuitable for underground coal mining operations (MRP, p. 17);
 - c. not on any lands subject to the prohibitions or limitations of 30 CFR 761.11 {a} (national parks, etc.), 761.11 {f} (public buildings, etc.) and 761.11 {g} (cemeteries) (MRP, p. 25);

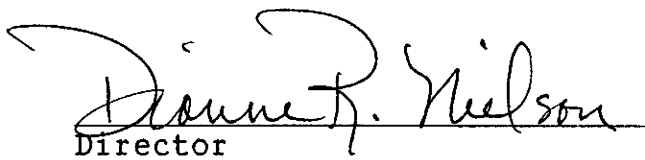
- d. not within 100 feet of a public road (MRP, p.189);
 - e. not within 300 feet of any occupied dwelling (MRP, p. 17) (UMC 786.19 {d}).
5. The regulatory authority's issuance of a permit is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800) (UMC 786.19 {e}) (letter from the Division of State History, January 18, 1989, attached to the TA).
 6. The applicant has the legal right to enter and complete mining activities in the new lease areas through lease agreements (UMC 786.19 {f}).
 7. A 510(c) report has been run on the Applicant Violator System (AVS), which shows that: prior violations of applicable laws and regulations have been corrected; neither Andalex Resources, Inc. or it's parent company are delinquent in payment of fees for the Abandoned Mine Reclamation Fund; and the applicant does not control and has not controlled mining operations with demonstrated pattern of willful violations of the Act of such nature, duration, and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act (UMC 786.19 {g}{h}{i}) (See OSMRE Relatedness Report, attached to TA).
 8. Underground mining operations to be performed under the permit will not be inconsistent with other operations anticipated to be performed in areas adjacent to the proposed permit area. The closest operating mine is the Soldier Canyon Mine.
 9. The applicant has posted a surety bond for the Centennial Project in the amount of \$381,839.00. No additional surety will be required, since there is no additional surface disturbance proposed (UMC 786.19 {k}).
 10. No lands designated as prime farmlands or alluvial valley floors occur on the permit area (UMC 786.19 {l}) (See MRP pp. 76, 24).

11. The proposed postmining land-use of the permit area is the same as the pre-mining land use and has been approved by the regulatory authority (UMC 786.19 {m}).
12. The regulatory authority has made all specific approvals required by the Act, the Cooperative Agreement and the Federal Lands Program (UMC 786.19{n}).
13. The proposed operation will not affect the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habits (UMC 786.19 {o}) (See MRP p. 66).
14. All procedures for public participation required by the Act, and the approved Utah State Program have been complied with (UMC 786.11- .15).
15. No existing structures will be used in conjunction with mining of the underground lease additions, other than those constructed in compliance with the performance standards and subchapter K under the existing permit (UMC 786.21).


Permit Supervisor


Administrator, Mineral
Resource Development and
Reclamation Program


Associate Director, Mining


Director

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Andalex Resources, Inc.
Centennial Project
Underground Lease Additions
ACT/007/019
Carbon County, Utah

January 18, 1989

I. Introduction

This report contains a Cumulative Hydrologic Impact Assessment (CHIA) for Andalex Resources, Inc., Centennial Project located in Carbon County, Utah. The assessment encompasses the probable cumulative impacts of all anticipated coal mining on the hydrologic balance in and adjacent to Centennial's proposed and active underground mine complex, and evaluates whether the operations proposed in the application have been designed to prevent damage to the hydrologic balance outside the proposed mine plan area.

This report complies with federal legislation passed under the Surface Mining Control and Reclamation Act (SMCRA) and subsequent Utah and federal regulatory programs under UMC 786.19(c) and 30 CFR 784.14(f), respectively.

This assessment incorporates the Aberdeen Mine. On March 11, 1988 the Division of Oil, Gas and Mining received notification of intent to conduct mining activities in the Aberdeen Mine. The Aberdeen Mine was originally proposed in the Mining and Reclamation Plan (MRP), but remained undeveloped until demand made production from the coal seam feasible. The development proposal was treated as a new permitting action since the proposal included a modification to existing federal leases which increased the permit area by approximately 400 acres by adding 162 acres to Federal Lease U-010581, 160 acres to Federal Lease SL-063058 and 116 acres to Federal Lease SL-027304. The reserves in these three leases will be mined as an extension of the Aberdeen Mine.

This CHIA also assesses an application submitted on August 9, 1988 to incorporate a new mine permit for 560 acres on the north-east corner of the permit area which consists of a new federal lease (U-05067, 320 acres) and a lease from SUNEDCO (240 acres of fee property). The reserves in these two leases will be mined as an extension of the Pinnacle Mine.

I. Introduction

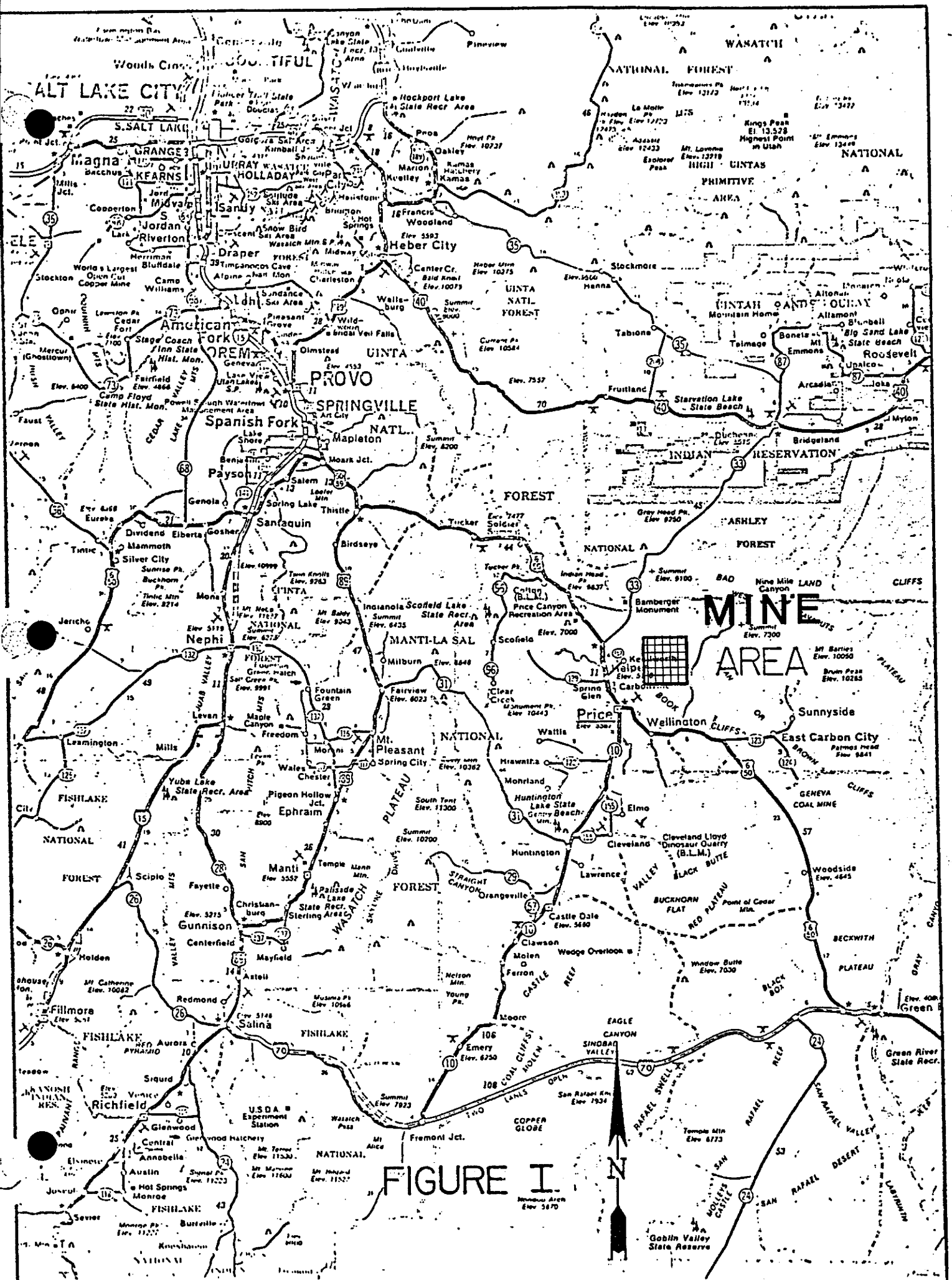
Andalex Resources Inc. Centennial Project is located within the Book Cliffs Coal Field approximately 10 miles north-northeast of Price, Utah (Figure 1). The Book Cliffs form a rugged, southerly facing escarpment that delineates the Uintah Basin to the north from the San Rafael Swell to the south. Elevations along the Book Cliffs range from approximately 5,000 to 9,000 feet.

Outcropping rocks of the Book Cliffs range from Upper Cretaceous to Quaternary in age. The rock record reflects an overall regressive sequence from marine (Mancos Shale) through littoral and lagoonal (Blackhawk Formation) to fluvial (Castlegate Sandstone, Price River Formation and North Horn Formation) and lacustrine (Flagstaff Formation) depositional environments. Oscillating depositional environments within the overall regressive trend are represented by members of the Blackhawk Formation. The major coal bearing unit within the Book Cliffs Coal Field is the Blackhawk Formation.

Precipitation varies from 20 inches at higher elevations to 5 inches at lower elevations. The Book Cliffs area may be classified as mid latitude steppe to desert.

Vegetation varies from the sagebrush/grass community type at lower elevations to the Douglas fir/aspen community at higher elevations. Other vegetative communities include mountain brush, pinyon-juniper, pinyon-juniper/sagebrush and riparian. These communities are primarily used for wildlife habitat and livestock grazing.

Surface runoff from the Book Cliffs area flows into the Price River drainage basin of east-central Utah. The Price River originates near Scofield Reservoir and flows southeasterly into the Green River, north of the town of Green River, Utah. Water quality is good in the mountainous headwater tributaries, but deteriorates rapidly as flow traverses the Mancos Shale. The shale lithology typically has low permeability, is easily eroded and contains large quantities of soluble salts that are a major contributor to poor water quality. Depending upon the duration of contact, water quality degrades downstream to where total dissolved solids (TDS) levels of 3,000 milligrams per liter (mg/l) are common. The predominant ion leached from the Mancos Shale is sulfate (SO_4) with values over 1,000 mg/l common in the lower reaches of the Price River.



II. Cumulative Impact Area (CIA)

Plate 1 delineates the CIA for the current Centennial Project operations. The CIA includes the Deadman Canyon drainage, the Straight Canyon drainage, the Hoffman Creek drainage and several other unnamed ephemeral drainages between Deadman Canyon and Hoffman Creek. The northern boundary of the CIA has been established at the natural drainage divide between drainages flowing north into the Price River and drainages flowing south into Deadman Canyon and Coal Creek and eventually into the Price River.

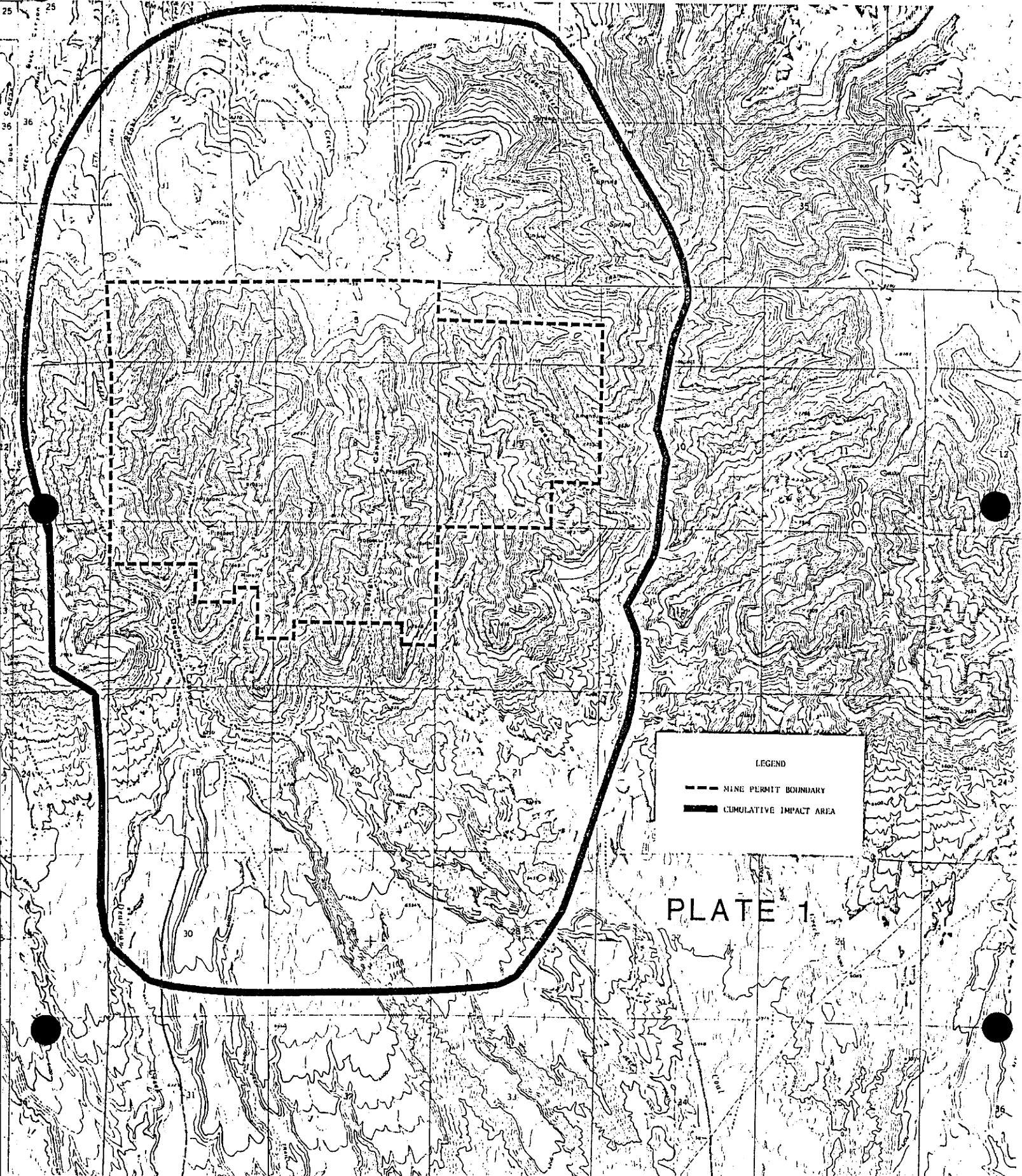
The Centennial Project is located entirely within the watershed flowing to the south. The eastern boundary of the CIA is designated by Coal Creek, a perennial stream. Mining in the Centennial Project will not occur beneath Coal Creek and therefore the limits of the CIA do not extend to the east of Coal Creek. The western and southern boundaries of the CIA are defined by the western extent of Sections 19 and 30 in T 13 N, R 11 E and the southern extent of Sections 27, 28, 29 and 30 in T 13 N, R 11 E, respectively. A first level analysis was conducted using the section lines as the CIA boundary. Completion of the review at this level indicated that cumulative hydrologic impacts did not exist within these limits. Therefore, further analysis was not conducted beyond these limits and the CIA was determined to be complete. The CIA encompasses approximately 20.2 square miles.

III. Scope of Mining

Initial mining operations of the Centennial Project began in October, 1980 in the Pinnacle Mine on the Zion's fee lease. The original Mining and Reclamation Plan was approved in January, 1982, and mining progressed onto the federal leases. In June, 1982 the Apex Mine was opened. In October, 1981 modifications to three federal leases were granted, however these leases were not added to the overall mine plan area at that time. A 120 acre federal emergency lease was granted in November of 1983 and permitted in May of 1986. The coal mined from the emergency lease was extracted as an underground extension of the existing Pinnacle Mine operation.

With the inclusion of the three Aberdeen Seam lease modifications (SL-063058, SL-027304, and U-01081), the new federal lease (U-05067), the SUNEDCO lease and the BLM right-of-way (see Figure 2), the Centennial Project area totals 3,348 acres of which 2,928 acres are federal. Mineable reserves within the plan will total approximately 52 million tons, with recoverable coal estimated at 33 million tons. To date 3.5 million tons have been mined.

Surface disturbance will be contained within the Right Fork of Deadman Canyon adjacent to the mine entries. A total of 34.20 acres is planned for surface disturbance and reclamation.



LEGEND

--- MINE PERMIT BOUNDARY

— CUMULATIVE IMPACT AREA

PLATE 1

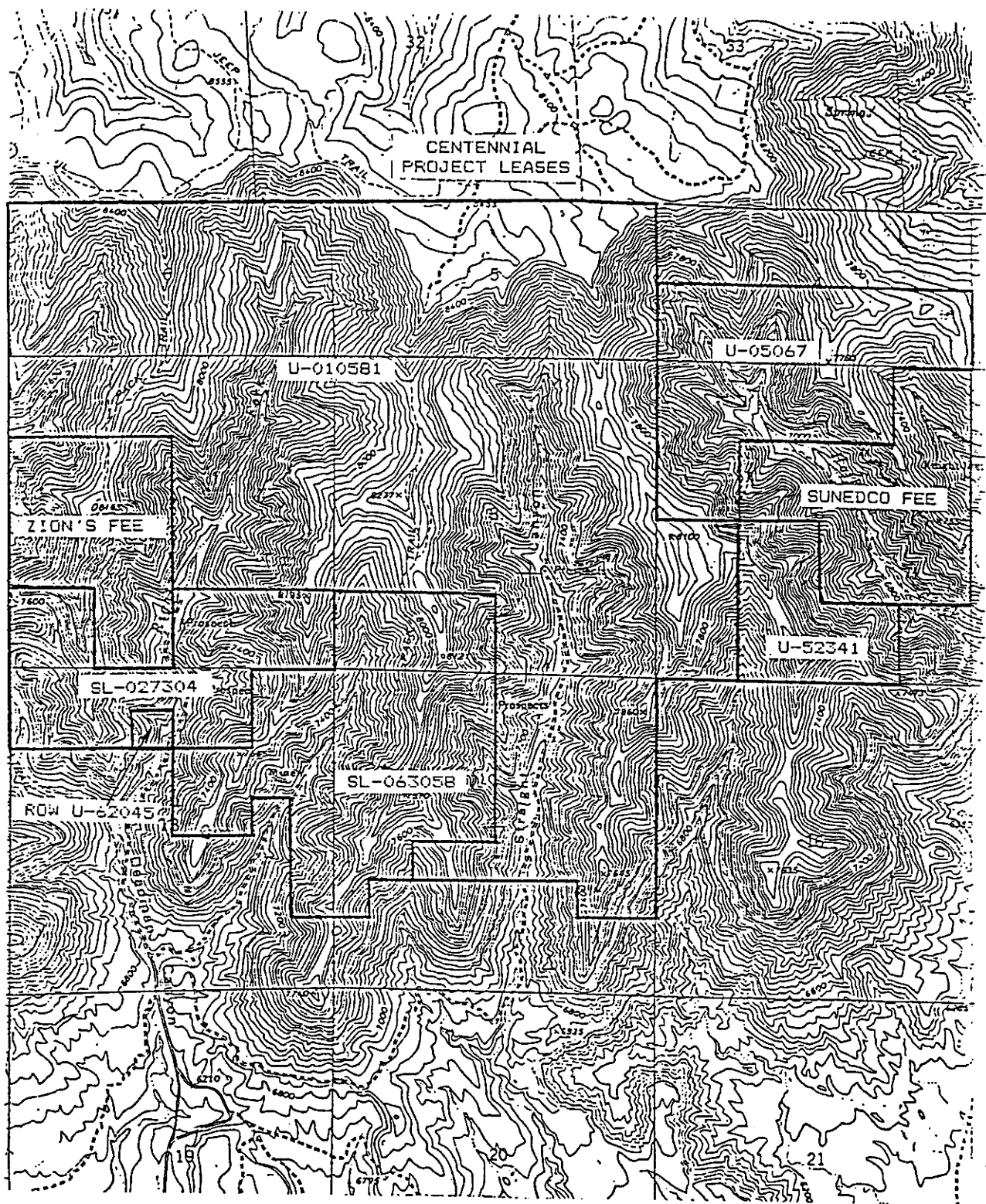


Figure 2

Three seams of mineable coal are located within the permit area (Figure 3). The approved Mining and Reclamation Plan for the Centennial Project calls for the eventual development of a separate mine in each seam. Currently two mines, the Pinnacle Mine in the Gilson Seam and Apex Mine in the Lower Sunnyside Seam have been developed and are currently operating. A third mine, the Aberdeen Mine, now has plans for development in the Aberdeen Seam.

Production will be from room and pillar mining methods with secondary pillaring. Mine development will occur simultaneously in each of the three seams. Longwall mining may be introduced if conditions prove favorable. Overburden thickness ranges from approximately 0 to 2400 feet.

IV. Study Area

A. Geology

The Book Cliffs are basically a homocline (dip slope) dipping into the Uintah Basin with the cliff front roughly paralleling the strike of the feature. The beds are mostly uniform with dips of 3° to 8° to the north and northeast. Occasional faults cut the coal measures in the Book Cliffs but are of small displacement and have been of little consequence in mining. There are no faults known to exist within the Centennial Project. No major faults exist in the area adjacent to the mine plan area, however, Doelling (1972) shows that one minor fault may exist about one-half mile south of the portal area.

Geologic formations exposed within the mine plan area are the Blackhawk and Price River Formation of the Mesa Verde Group and the North Horn and Flagstaff members of the Wasatch Formation (Figure 4). The Blackhawk Formation, which directly overlies the Mancos Shale in the vicinity of the Centennial Project (Doelling, 1972) is the middle and coal bearing unit of the Mesa Verde Group. The Blackhawk consists of a basal sandstone (the Aberdeen Sandstone) overlain by massive beds of gray to buff sandstone with alternating beds of sandy shale, shale and coal (Clark, 1928). In the vicinity of the Centennial Project, the Blackhawk Formation is approximately 1000 feet thick (Doelling, 1972).

Overlying the Blackhawk Formation is the Price River Formation. The Price River Formation is composed of a massive basal sandstone (referred to as the Castlegate Sandstone) and upper beds overlying the Castlegate (Clark, 1928). The Castlegate Sandstone consists of

GEOLOGIC COLUMN OF CENTENNIAL AREA

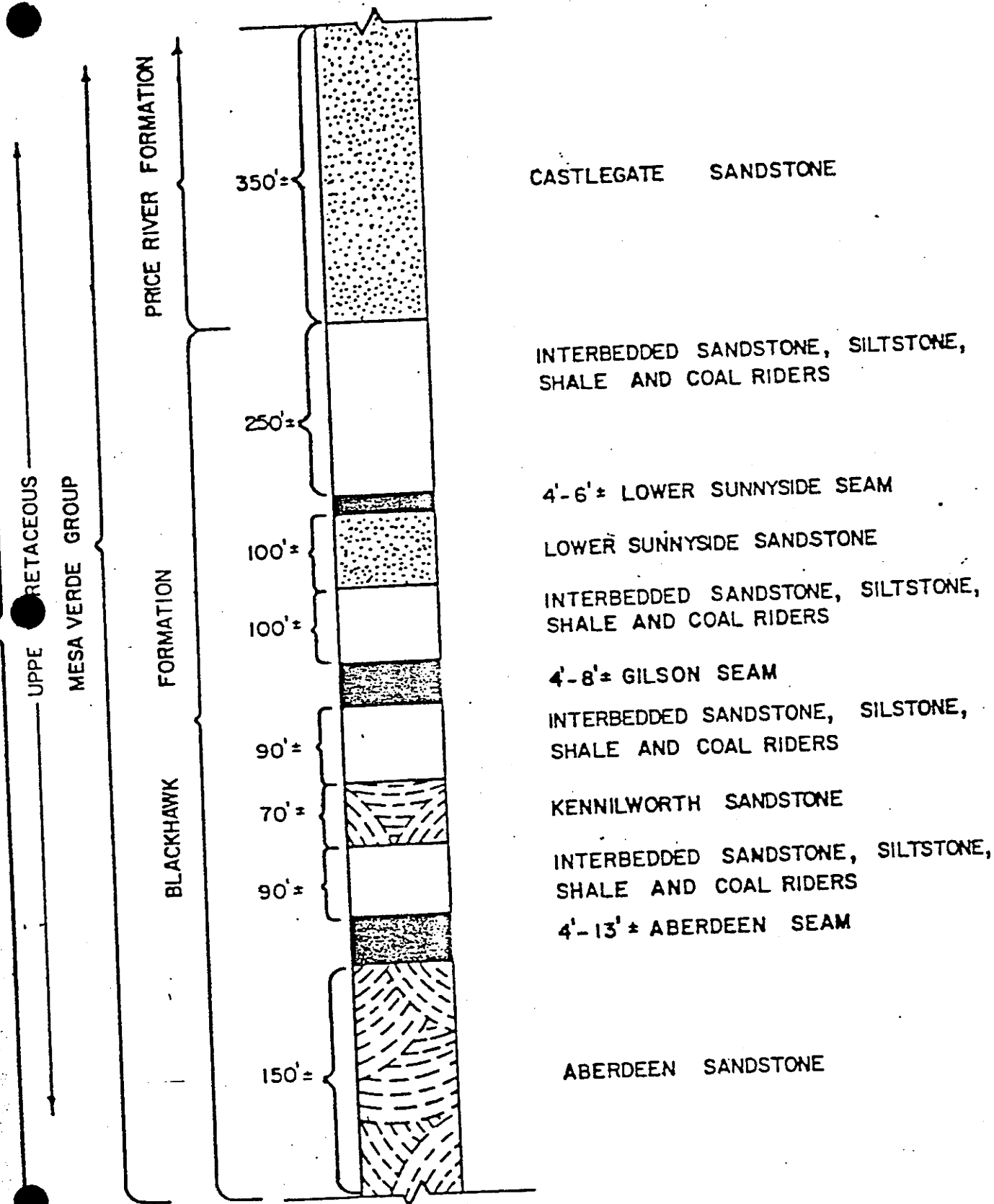


Figure 4

massive, fine-grained to medium-grained sandstone beds (Doelling, 1972) which are gray to buff and composed mainly of semi-rounded quartz grains (Clark, 1928). The Castlegate Sandstone is approximately 250 feet thick near the Centennial Project (Doelling, 1972). The upper portion of the Price River Formation consists of two or more thick beds of sandstone, interbedded with thin-bedded shale and sandy shale (Clark, 1928).

The North Horn Formation, the lower most member of the Wasatch Formation, consists of a series of shale, mudstone, sandstone, minor conglomerate and freshwater limestone. Near the Centennial Project, the North Horn Formation is approximately 600 feet thick.

The Flagstaff Limestone, also a member of the Wasatch Formation, consists of thin-bedded limestones, shales, and sandstones (Doelling, 1972). The Flagstaff Limestone is exposed just north of the mine plan area on the Plateau.

B. Topography and Precipitation

Topography in the area is generally very steep and rugged, with elevations ranging from approximately 6400 feet to 8500 feet above sea level. Slopes vary from vertical cliffs to less than 2 percent. The entire CIA is characterized by a south to south-east ephemeral drainage system that originates above 8400 feet and progressively traverses nonmarine and marine Cretaceous rocks and alluvial fan deposits. The Right and Left Forks of Deadman Canyon and an unnamed ephemeral drainage drain the western portion of the CIA. Straight Canyon, an unnamed ephemeral drainage and Hoffman Creek drain the southeastern portion of the CIA and are tributary to Coal Creek. Coal Creek and Deadman Canyon are both tributary to the Price River.

Precipitation in the Book Cliffs Coal Field ranges from 5 inches to a maximum of 20 inches annually. For the most part along the coal outcrops, 10 to 12 inches of rain are expected (Doelling, 1972).

C. Vegetation

Mountain-Brush, Desert-Shrub, Pinyon-Juniper Woodland, Sagebrush-Grass, Conifer-Aspen and minor stream side vegetative types cover the total CIA. Most of the area is covered by the Mountain-Brush type while the Pinyon-Juniper Woodland type is predominant in the mine mouth area as well as the access routes and utility corridors.

V. Hydrologic Resources

A. Ground Water

The principle factor controlling the occurrence and availability of groundwater in any area is geology. As noted by Price and Waddell (1972), nearly all of the region in the CIA is underlain by rocks of continental and marine origin, consisting predominantly of interbedded sandstones and shales. Although some of the sandstones in the region serve as the principle water-bearing strata, their ability to yield water for extended periods of time is largely controlled by the fact that the sandstone beds are relatively impermeable and by the existence of the impermeable interbedded shale layers, which prevent the downward movement of a significant amount of water. According to the U. S. Geological Survey (1979), groundwater in the region exists under water table, artesian and perched conditions. Water table conditions exist primarily in shallow alluvial deposits along larger perennial streams and in relatively flat lying sedimentary rocks. Artesian conditions exist at greater depths where a confining layer overlies a more permeable strata. However, pressures are generally not sufficient to produce flowing wells.

Snowmelt at higher elevations provides most of the groundwater recharge, particularly where permeable lithologies such as fractured or solution limestone are exposed at the surface. Vertical migration of groundwater occurs through permeable rock units and/or along zones of faulting and fracturing. Lateral migration initiates when ground water encounters impermeable rocks and continues until either the land surface is intersected (and spring discharge occurs) or other permeable lithologies or zones are encountered that allow further vertical flow.

The Kenilworth Member, Sunnyside Member and Upper Mudstone Member of the Blackhawk Formation; Castlegate Sandstone; Bluecastle Sandstone Member of the Price River Formation; undifferentiated North Horn/Flagstaff Formation; and Quaternary deposits are potential reservoirs or conduits for groundwater in the CIA. Reservoir lithologies are predominantly sandstone and limestone. Sandstone reservoirs occur as channel and overbank lenticular and tabular deposits, whereas limestone reservoirs have developed through solution processes and fracturing. Shale, siltstone and cemented sandstone beds act as aquacludes to impede ground-water movement. The Mancos Shale is a regional aquaclude that delimits downward flow within the CIA.

Localized aquacludes include the Aberdeen Member and Lower Mudstone Member of the Blackhawk Formation, Lower Unnamed Member of the Price River Formation and relatively thin impermeable lithologies occurring within overlying units.

Well test data from two water wells completed in the Blackhawk Formation near the portal area have been obtained from pumping tests. Well #1 is 130 feet deep and had a static water level of 58 feet below land surface prior to testing. After four hours of pumping at 50 gallons per minute, the water level had been lowered to 67 feet below land surface. In January 1981, after about three months use, this well was almost dry. These facts indicate that the aquifer may yield up to 5.5 gallons per minute per foot of drawdown but cannot produce a sustained yield over a period of time.

Well #2 was initially drilled to a depth of 155 feet and had a static water level of 57 feet below land surface. After two hours of pumping at 30 gallons per minute, the water level was lowered to 88 feet below land surface. The well was then drilled to a depth of 230 feet and pumped again. After only one hour of pumping at a rate of 30 gallons per minute the water level was lowered from 57 feet to 100 feet below land surface. After three weeks of pumping, in February of 1981, this well also almost dried up. The test results from well #2 indicate that the water bearing zone is less transmissive than well #1 but like well #1, it is very limited in areal extent.

The testing program of wells #1 and #2 was very limited and as a result the data from these tests must be regarded as such. However, estimates of transmissivity and areal extent of the aquifers in which these wells were completed indicate zones of low to moderate transmissivity of limited areal extent. In general these facts substantiate the lenticularity of the Blackhawk Formation and the fact that the water bearing zones are perched with a limited amount of recharge.

Seeps and springs were inventoried within and adjacent to the Centennial Project. Two springs occur within and adjacent to the mine permit area. One spring was identified approximately one-half mile south of the portal area and the other spring is located at the mouth of Hoffman Canyon. Both of these springs occur at or near the contact of the Blackhawk Formation and the Mancos Shale. Average flow is estimated to be less than ten gallons per minute for each spring.

In 1983 Andalex Resources encountered groundwater in an area of burned coal during mining operations adjacent to the Emergency Lease. The water exists in the burn area between the underlying and overlying sandstones. The burn area, consisting of burned coal and rubble, acts as a reservoir with limited storage capacity. Recharge is from direct infiltration of precipitation and runoff directly into the outcrop. Due to the permeable nature of the burned outcrop, water easily percolates into the strata, flowing downgradient until the maximum available storage capacity of the burn area is achieved. Further movement downgradient is prevented by the existence of the relatively impermeable unburned coal. Andalex estimates that approximately seven million gallons of water are contained in the burn area.

Very little water has been encountered in the Pinnacle Mine. Water that has been encountered has been in the form of small roof leaks that dry up within a few days or weeks after mining progresses downdrift. Mine inflow is most likely attributed to localized zones of saturation in the Blackhawk Formation.

B. Surface Water

The Centennial Project CIA is situated in the Book Cliffs near the headwaters of the Price River Basin. In general, the chemical quality of water in the headwaters of the Price River Basin is excellent, with this watershed providing most of the domestic water needs of the people below. However, this quality rapidly deteriorates downstream as the streams cross shale formations (particularly the Mancos Shale in and adjacent to Castle Valley) and receive irrigation return flows from lands situated on Mancos-derived soils (Price and Waddell, 1973). Within the Price River Basin, for example, Mundorff (1972) reports that the Price River and its tributaries generally have a dissolved solids concentration of less than 400 milligrams per liter upstream from Helper. The water in this area is of a calcium-bicarbonate type. Between this point and the confluence with Miller Creek, most of the flows originate on or tranverse Mancos shales. Much of the flow is derived from irrigation return flows. The Price River at Wellington, which is near the center of the basin, has an average dissolved solids content of about 1700 milligrams per liter and is of a mixed chemical type (calcium-magnesium-sodium-sulfate). At Woodside, which is about 22 miles upstream from the confluence of the Price River with the Green River, the weighted average dissolved solids content has generally been between 2000 and 4000 milligrams per liter, with the water type being strongly sodium-sulfate.

Sediment yield from the upper portion of the basin is probably negligible (Mundorff, 1972). According to the U. S. Soil Conservation Service (1975), erosion rates in the Price and San Rafael River basins vary from 0.1 to 3.0 acre-feet per square mile per year. The bulk of the sediment yielded each year at the mouth of the Price River comes from limited areas covered with highly erodable shales (Mundorff, 1972).

The Centennial Project area is drained by ephemeral drainages heading primarily in a southerly direction. The Right and Left Forks of Deadman Canyon and an unnamed ephemeral drainage drain the western portion of the CIA including the area of the surface facilities. Straight Canyon, Hoffman Creek, and an unnamed ephemeral drainage drain the eastern portion of the CIA and are tributary to Coal Creek, a perennial stream. Coal Creek and Deadman Canyon are both tributary to the Price River.

Surface disturbances related to coal mining occur only in the Right Fork of Deadman Canyon. Interaction between the surface disturbances and this ephemeral drainage are minimized due to sediment control facilities that are in place. Mining has occurred beneath the Right Fork of Deadman Canyon, two unnamed ephemeral drainages, and Straight Canyon. Mining in the Emergency Lease continued under the Hoffman Creek drainage.

The ephemeral drainages flow in response to snowmelt and rainfall events. Water quality analyses of snowmelt runoff in the ephemeral drainages generally indicate major dissolved chemical constituents of magnesium, sodium, sulfate and bicarbonate.

VI. Potential Hydrologic Impacts

A. Ground Water

Dewatering and subsidence related to mining have the greatest potential for impacting groundwater resources in the CIA.

Dewatering

Very little water has been encountered in the currently operating mines within the Centennial Project. Water that has been encountered has been in the form of very small roof leakers that dry up within a few days or weeks after mining progresses downdrift. No mine water, with the exception of the intercepted burn area water, has been discharged in the past.

Water well test data indicate perched aquifers of low transmissivity and limited areal extent. A mining induced dewatering impact is therefore, determined to have a low probability.

Subsidence

Subsidence impacts are largely related to extension and expansion of the existing fracture system and upward propagation of new fractures. Inasmuch as vertical and lateral migration of water appears to be partially controlled by fracture conduits, readjustment or realignment in the conduit system will inevitably produce changes in the configuration of groundwater flow.

Potential changes include increased flow rates along fractures that have "opened" and diverting flow along new fractures or permeable lithologies. Subsurface flow diversions may cause the depletion of water in certain localized aquifers, whereas increased flow rates along fractures would reduce groundwater residence time and potentially improve water quality.

B. Surface Water

The main concern in terms of impacts to surface water is water quality deterioration downstream from the minesite. There will be no impact to the quantity of water due to the ephemeral nature of the drainages. All drainages in the CIA flow only in response to snowmelt runoff and rainfall events. Infiltration rate and runoff volumes will not be affected by the mining operations.

The area influenced by surface disturbance is of limited areal extent and confined only to the Right Fork of Deadman Canyon. Surface sediment controls currently are in place and will continue to be in place during reclamation. The water quality impacts associated with reclamation will be minimal or nonexistent due to the fact that all drainage from the disturbed area will be routed through sediment controls and treated via the use of sedimentation ponds prior to any release of disturbed area drainage.

VII. Influence of Other Mining

The Centennial Project has the only active coal mines in the CIA. The Soldier Canyon Mine is located approximately six miles to the east in Soldier Canyon and the Price River Mine Complex is located approximately nine miles to the west in the Price River Canyon. With the latest additions the eastern border of the mine plan area is 2 1/4 miles from the western border of Soldier Creek Coal Company's mine plan area.

A cumulative hydrologic impact assessment prepared in December of 1984 for the Soldier Canyon Mine has addressed the hydrologic impacts for the anticipated mining in the Soldier Creek drainage. The greatest ground water concern with respect to the Soldier Canyon Mine is the undermining of Soldier Creek and the potential for streamflow to be lost into the mine via subsidence fractures through a minimum of 150 feet of overburden material. Three springs overlying the mine could be affected by subsidence associated with mining. These effects are possible but unlikely because the springs are located in the Flagstaff Limestone and the North Horn Formation and separated from the coal seams by approximately 900 feet of overburden. Additionally, approximately 50 gallons per minute currently enters the Soldier Canyon Mine from diffuse sources from the lenticular sandstones, shales and coal of the Blackhawk Formation.

The probable hydrologic impacts to the ground water are distinct and independent at the Centennial Project and at the Soldier Canyon Mine. There is no hydrologic connection between the alluvial aquifer underlying Soldier Creek and the operations at the Centennial Project. While both mining operations occur in the Blackhawk Formation, the aquifers associated with this Formation are perched and lenticular in nature. Pump test data in the Blackhawk Formation and monitoring of ground water inflow at each of the mines has demonstrated the absence of a regional aquifer in this Formation. The hydrologic impacts of the Centennial Project with respect to ground water will therefore not affect or be affected by the mining activities at the Soldier Canyon Mine.

The cumulative hydrologic impact assessment prepared for the Soldier Canyon Mine indicates that the greatest impacts to the surface water resource are related to changes in water quality caused by discharge of mine waters with a relatively high total dissolved solids (TDS) concentration. The Soldier Creek Coal Company has committed to limiting the volume of discharge so that the discharge TDS load will be less than the NPDES limits of 1.0 tons per day.

The Centennial Project has encountered very little water in the perched aquifers associated with the Blackhawk Formation and has not discharged water out of the mine due to the interception of the water by mining activities. Water out of an area of burned coal was discharged in 1983. Andalex Resources, Inc. has committed to obtaining an NPDES Permit and submitting a monitoring plan in the event that any unexpected mine water is encountered and must be discharged from the mine. Hydrologic impacts resulting from any treated discharge are therefore minimized and will not affect or be affected by the mine water discharge at the Soldier Canyon Mine.

A cumulative hydrologic impact assessment prepared in July of 1984 for the Price River Mine Complex has addressed the hydrologic impacts for the anticipated mining with respect to the Price River Basin. The CHIA has determined that the hydrologic effects of the Price River Coal Company (now Castle Gate Coal Company) mining operation will have no cumulative impacts with existing or proposed coal mining operations. Intercepted ground water from the Blackhawk Formation during mining operations has been determined to be approximately 0.64 to 0.96 cubic feet per second. This would reduce baseflow to springs and streams in the area by a lesser amount because water is discharged from the mine. Pump test data in the Blackhawk Formation and monitoring of ground water inflow into the mine at the Price River Complex (PRC) as well as at the Centennial Project demonstrate that there is no hydrologic connection in the Formation between the two mining operations. Therefore, the hydrologic impacts associated with the two mining operations will not affect each other.

The cumulative hydrologic impact assessment prepared for the PRC indicates that there will be minimal impact to the surface water quantity and quality due to mining operations. The surface water control plan in place at the PRC is sufficient to prevent additional sediment from disturbed areas from entering streams or drainages in the permit area. Mine water discharge is controlled by an NPDES Permit and is therefore not contributing to the degradation of the existing surface water quality.

The Centennial Project has and will continue to treat surface water runoff from disturbed areas and any unexpected mine water discharge. The hydrologic impacts of the Centennial Project with respect to the surface water will therefore not affect or be affected by mining operations at the PRCC Complex.

The operational design proposed for the Centennial Project is herein determined to be consistent with preventing damage to the hydrologic balance outside the mine plan area.

WPOB79/7-23

REFERENCES

- Clark, Frank R., 1928. Economic Geology of Castlegate, Wellington and Sunnyside Quadrangles, Carbon County, Utah: U. S. Geological Survey Bulletin 793.
- Doelling, H. H. 1972. Wasatch Plateau Coal Fields. In Doelling, H. H. (ed.). Central Utah Coal Fields; Sevier-Sanpete, Wasatch Plateau, Book Cliffs and Emery. Utah Geological and Mineralogical Survey Monograph Series No. 3. Salt Lake City, Utah.
- Mundorff, J. C. 1972. Reconnaissance of Chemical Quality of Surface Water and Fluvial Sediment in the Price River Basin, Utah. Utah Department of Natural Resources, Division of Water Rights. Technical Publication No. 39. Salt Lake City, Utah.
- Price, D. and K. M. Waddel. 1973. Selected Hydrologic Data in the Upper Colorado River Basin. U. S. Geological Survey Hydrologic Investigations Atlas HA-477. Washinton, D. C.
- U. S. Soil Conservation Service. 1975. Erosion, Sediment, and Related Salt Problems and Treatment Opportunities. Special Projects Division. Golden, Colorado.
- United States Geological Survey, 1979. Development of Coal Resources in Utah, Final Environmental Statement, Part 1.

WPOB79/

STIPULATIONS

Andalex Resources, Inc.
Centennial Project
Underground Lease Additions
ACT/007/019
Carbon County, Utah

January 18, 1989

Stipulation UMC 817.48-(1) - JSL

1. The operator must commit, within 60 days of permit approval, to monitor the roof, floor, and mid-seam according to Table 6 of the "Guidelines for the Management of Topsoil and Overburden" (April 1988) for possible toxic contaminants. Monitoring shall be conducted on an annual basis or more if the general location of the mining operations change and this change affects the quality of the floor, roof, or mid-seam. Results of the analysis are to be reported in the annual report.

Stipulation UMC 817.52-(1) - RPS

1. Within 30 days of permit approval, the applicant must submit an approvable revised surface water monitoring plan. The plan must include a commitment to maintain a rain gauge at the site and keep daily records of precipitation events or nonoccurrence of events. The plan must commit to collection of at least one sample per quarter for a two year period for the surface water monitoring sites with analysis as per the Division's Baseline parameter list. The plan must commit to the same schedule with analysis as per the Division's Operational parameter list for the remainder of the permit term. The plan may state that a sample will not be collected due to a lack of precipitation events in that quarter as documented by the rain gauge records. The plan must commit to retaining the precipitation records at the minesite to be available for inspection upon request by Division staff.

Stipulation UMC 817.52-(2) - DD

2. The applicant must summarize all water monitoring data in a logical order. Data should be plotted to show sequence and concentration of sample. This information should be organized for insertion into the Mining and Reclamation Plan and submitted within 30 days of permit approval.

TECHNICAL ANALYSIS

Andalex Resources, Inc.
Centennial Project
Underground Lease Additions
ACT/007/019
Carbon County, Utah

January 18, 1989

UMC 817.48 Hydrologic Balance: Acid-Forming and Toxic-Forming Materials - JSL

Existing Environment and Applicant's Proposal

The primary potential effects to the hydrologic system from the Lease Modification or the New Lease areas will come from potential leaching from the roof, floor, or unrecovered coal in the mined areas. To determine the potential for this to occur, samples have been collected and analyzed. Data was received August 29, and November 14, 1988.

Compliance

The Mining and Reclamation Plan (MRP) does not adequately address the requirements of this section. The analysis received is not accurate. In accordance with the "Guidelines for Management of Topsoil and Overburden" (April 1988) roof, floor, and mid-seam must, at a minimum, be correctly analyzed according to the referenced procedures, or other procedures if equivalent or otherwise approved by the Division, for the parameters listed in Table 6. The November analysis represented total boron, not available boron as requested. The data indicates that high levels of boron may exist. Boron should be analyzed by either hot water or saturation extract procedure.

Stipulation UMC 817.48-(1) - JSL

1. The operator must commit, within 60 days of permit approval, to monitor the roof, floor, and mid-seam according to Table 6 of the "Guidelines for the Management of Topsoil and Overburden" (April 1988) for possible toxic contaminants. Monitoring shall be conducted on an annual basis or more if the general location of the mining operations change and this change affects the quality of the floor, roof, or mid-seam. Results of the analysis are to be reported in the annual report.

UMC 817.52 Hydrologic Balance: Surface and Groundwater
Monitoring - RPS/DD

Surface Water

Existing Environment and Applicant's Proposal

A surface monitoring plan is described in section 3.1-1.2 and the monitoring locations are depicted on Figure IV-11 of Chapter 4. Monitoring site 25-2 is established in the Hoffman Creek drainage, sites 7-1, 18-2, 18-3, and 18-4 have been established in the Deadman Canyon drainage, and 8-1 has been established in the Straight Canyon drainage. Sites 18-3, and 18-4 will monitor the Right and Left Forks of Deadman Canyon and site 18-2 will monitor the unnamed north fork tributary to Deadman Canyon down gradient from the lease areas. Sites 7-1 and 8-1 will monitor the Right Fork of Deadman Canyon and Straight Canyon respectively near the headwaters of the streams.

Compliance

The drainages in the lease areas are all reported to be ephemeral in nature (Appendix L, Vaughn Hansen and Assoc. Report, MRP). The applicant states that the above referenced sites will be monitored as access permits on a quarterly basis. The applicant's water quality data submitted in Appendix L indicates that very few (usually only one or two) samples have been collected for each site since 1981. The Division feels that the existing monitoring plan is not fulfilling the requirements of this regulation. In addition, the permit is not enforceable for missed samples if a runoff event occurs. Stipulation UMC 817.52-(1) - RPS is necessary for approval.

Stipulation UMC 817.52-(1) - RPS

1. Within 30 days of permit approval, the applicant must submit an approvable revised surface water monitoring plan. The plan must include a commitment to maintain a rain gauge at the site and keep daily records of precipitation events or nonoccurrence of events. The plan must commit to collection of at least one sample per quarter for a two year period for the surface water monitoring sites with analysis as per the Division's Baseline parameter list. The plan must commit to the same schedule with analysis as per the Division's Operational parameter list for the remainder of the permit term. The plan may state that a sample will not be collected due to a lack of precipitation events in that quarter as documented by the rain gauge records. The plan must commit to retaining the precipitation records at the minesite to be available for inspection upon request by Division staff.

Ground Water

Existing Environment and Applicant's Proposal

The applicant describes the geologic characteristics in the vicinity of the mine area in Chapter III, 3.3-1, and in Appendices E and L.

Ground water inventories were conducted over lease U-05067 and the SUNEDCO fee lease during the fall of 1980. Figure 5 shows the location of all springs and wells on and adjacent to the mine plan area. The applicant commits to identifying and monitoring any significant ground water inflows to the mine, should they occur.

The applicant has presented a new ground water monitoring program in Chapter IV, Part 1, Section 3.1. These changes will decrease the number of parameters currently monitored and conform to operational guidelines suggested by DOGM.

Ground water hydrology is discussed in Appendix L, page 114. Ground water monitoring sites are depicted on Figure IV-11, page 118 and include Well #1, springs S18-1 and S25-1. Data from these selected sites are given in Appendix H.

The information presented in the Mining and Reclamation Plan by Andalex is sufficient to define the ground water system in the vicinity of the mine for the next 5-year permit term. The ground water hydrology for the Aberdeen seam is essentially identical to that of the remainder of the permit area.

There are no springs located in the initial field survey on the Aberdeen mine plan area. Two springs lie outside the mine plan area. The Blackhawk in the vicinity of the mine is very lenticular and unfractured. Neither of these springs issue from the Blackhawk Formation. A few small perched aquifers exist over the mine plan area.

Two wells have been drilled on the property. Well #1 is 150 feet deep and Well #2 is 155 feet deep. These wells supply small amounts of water for mine use. Very little water is encountered in the mines. What water has been encountered has been stored and used in the mine.

The applicant plans to monitor the two wells and Spring S18-1.

Compliance

The applicant has complied with the requirements of this section. The ephemeral nature of Hoffman Creek indicates that there are not significant springs in the canyon to sustain a flow to the creek. Hence, there would be essentially no impacts to perched ground water sources.

Current ground water monitoring data appears incomplete with respect to the proposed (old permit submitted) permit monitoring frequency. The data that is presented should be summarized and presented in an organized manner.

Stipulation UMC 817.52-(2) - DD

2. The applicant must summarize all water monitoring data in a logical order. Data should be plotted to show sequence and concentration of sample. This information should be organized for insertion into the Mining and Reclamation Plan and submitted within 30 days of permit approval.

UMC 817.59 Coal Recovery - JRH

Existing Environment and Applicant's Proposal

The underground permit application submitted by Andalex proposes to add new lease areas to their current permit area. The new lease area consists of 758 acres of federal leases and 240 acres of fee. Total lease area for the approved and proposed permitted area is as follows:

<u>LEASE</u>	<u>TOTAL</u>	<u>ADDITIONAL</u>	<u>CURRENT</u>
ZION FEE	200	0	200
SL-027304	236	116	120
SL-063058	400	160	240
U-010581	1,842	162	1680
U-52341	120	0	120
U-05067	320	320	0
SUNEDCO FEE	240	240	0
<hr/>			
TOTAL ACREAGE	3358	998	2360

Locations for the leases and lease modifications can be identified in the plan on Plate 4. Development and production from these new and modified leases will be from the existing adjacent facilities. No new surface disturbance or additional surface facilities will be required in conjunction with the utilization of these new leases.

Mining methodology for the new areas is similar to that of the existing permit for Andalex. Mining will be conventional room and pillar methods with utilization of continuous miners. No longwall mining is anticipated for the project.

Coal contours and layout for mining of the three coal seams is found on plates 29-31 of the proposal.

Andalex indicates that there are approximately 52.5 million tons of reserves in the entire mine plan area, of which 34.5 million tons are considered to be recoverable. To date, Andalex has mined approximately 3.5 million tons. Coal reserves include three mineable seams, the Lower Sunnyside, the Gilson, and the Aberdeen. Portals are proposed to be driven for each of the three seams. Only the Aberdeen seam is yet to be developed. Mine facilities for the other two seams are currently in existence.

Mining will be accomplished in all three seams utilizing standard room and pillar methods with continuous miners. The operator has submitted for approval and/or has received approval for roof control, ventilation and mining sequence plans from the BLM and MSHA.

Production from the mining facilities, which requires the simultaneous mining of all three seams is expected to gradually increase to 1.5 million tons per year in 1990 and remain constant throughout the life of the mining operations. The estimated life of the mine is approximately 20 years.

Sequence and timing of the mining operation is provided by the operator on plates 29, 30 and 31. Existing and abandoned mine workings are also provided on these drawings. Details of the current mine workings and the ventilation plan are provided on plates 32 and 33. No mining of the Aberdeen seam has yet occurred by the operator.

Compliance

This section of the regulations is considered to be complete and technically adequate. The operator has detailed the timing and the sequence of the mining operation for the permit term and has indicated the extent of mining throughout the projected life of the mine.

Lease modification and new lease information has been included and incorporated into the MRP.

Stipulations

None.

UMC 817.71 Disposal of Excess Spoil and Underground Development
Waste: General Requirements - JRH

Existing Environment and Applicant's Proposal

The applicant has addressed information regarding the requirements of this section on pages 190-192 of the MRP.

The applicant indicates in part UMC 784.19 that there has been no development waste or excess spoil and there will be none. The applicant further states that raw coal (run-of-mine coal) is the only product from the mine and that there are no coal processing waste facilities within the permit area.

The applicant states that the only spoil material which will be developed at the minesite will be sediment pond waste. Waste material developed underground is anticipated to remain underground or will be placed in an area which will report to a sediment pond.

Compliance

All facilities regarding the storage, treatment and disposal of excess spoils and mine development waste have been reviewed within the existing permit except for the proposed construction of the sediment pond and portions of those facilities located on BLM Right-of-Way Permit U-62045. No new surface facilities are proposed within the new coal lease areas.

The applicant complies with this section.

Stipulations

None.

UMC 817.121-.126 Subsidence Control Plan - DD

Existing Environmental and Applicant's Proposal

The subsidence control plan is outlined in Chapter IV, page 177 of the Mining and Reclamation Plan. More information on mining methods is presented in Chapter IV, page 73.

Mining in the Aberdeen Seam over the remainder of the 5-year permit term will be only developmental. There are no plans to pull pillars and cause conditions for subsidence. This information is shown on mining development maps, Plates 29, 30 and 31.

The applicant states that no structures or surface features which would be affected by subsidence exist over the new lease areas. Subsidence monitoring locations are referenced to Plate 25 and 32 as required under 30 CFR. Subsidence monitoring will take place upon retreat.

Compliance

A review of this section reveals that no adverse impacts will occur from subsidence during the current 5-year permit term from mining in the Aberdeen Seam. The applicant has addressed the concerns of these regulations.

In recognition of the potential of mining multiple seams and low cover in the SUNEDCO lease area the applicant will collect baseline information before mining of the area. Map 32 was not included in the submittal. Subsidence stations were found on Map 25.

Stipulations

None.

WPOB79

LETTERS OF CONCURRENCE

Andalex Resources, Inc.
Centennial Project
Underground Lease Additions
ACT/007/019
Carbon County, Utah

January 18, 1989

File Act/007/019 #2



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Moab District

P. O. Box 970

Moab, Utah 84532

3482

(U-06067)

(SL-027304)

(U-065)

Susan Linner, Permit Supervisor
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RECEIVED JAN 11 1989
JAN 19 1989

DIVISION OF
OIL, GAS & MINING

Dear Ms. Linner:

On August 15, 1988 your office forwarded a two-volume set of a Permit Application Package for Centennial Project, ACT/007/019, Andalex Resources, Inc. An initial review was made and geologic and engineering deficiencies were found. On October 15, 1988 a letter was sent to you noting these deficiencies. Since that time we have been in contact with Andalex Resources, Inc. and the deficiencies have been adequately satisfied.

Based on a review of the Resource Recovery and Protection Plan (R2P2) of the Permit Application Package, the Bureau of Land Management (BLM) recommends approval of this permit.

If you have any questions please contact Brent Northrup, Chief Solid Minerals or Shannon DeAun Hoefeler at (801) 259-6111.

Sincerely yours,

William C. Stringer

District Manager

cc:

U-921

U-066

ACTING



Norman H. Bangertter
Governor
Max J. Evans
Director

State of Utah

Division of State History
(Utah State Historical Society)
Department of Community and Economic Development

300 Rio Grande
Salt Lake City, Utah 84101-1182
801-533-5755

RECEIVED
JAN 20 1989

January 18, 1989

DIVISION OF
OIL, GAS & MINING

Mr. Lowell P. Braxton
Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Attention: Mr. David Darby

RE: Determination of Completeness, Andalex Resources, Inc., Centennial Project, Underground Lease Additions, ACT/007/019, Folder #2, Carbon County Utah

In Reply Please Refer to Case No. K439

Dear Mr. Braxton:

The Utah State Historic Preservation Office has reviewed its files for information on prehistoric and historic sites which might be affected by the above referenced project. There are recorded historic sites located in Sections 17 and 18 of Township 13 South Range 11 East of the proposed expansion area. It was difficult to ascertain whether the project will impact any of these sites.

We understand, however, that this proposed mine extension is for underground expansion. Therefore, there should be no impact to any historic or prehistoric resources as a result of this project. The Division of Oil, Gas, and Mining can use this information in making any further recommendations on the project.

The above has been provided on request as outlined in 36 CFR 800 or Utah Code, Title 63-18-37. The Utah SHPO makes no regulatory requirement in this matter. If you have questions, please call us at (801) 533-7039.

Sincerely,

Diana Christensen
Regulation Assistance Coordinator

DC:0228j/K439



STATE OF UTAH
NATURAL RESOURCES
Wildlife Resources

596 West North Temple • Salt Lake City, UT 84116-3154 • 801-533-9333

M 607/019

cc: S. Linner *Original File*

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
William H. Geer, Division Director

November 4, 1988

RECEIVED
NOV 09 1988

DIVISION OF
OIL, GAS & MINING

Dr. Dianne R. Nielson, Director
Utah Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

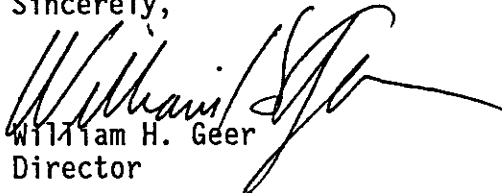
Attn: Susan Linner

Dear Dianne:

The Division has reviewed a Determination of Completeness for addition of 996 acres of lease area to Andalex Resources' Centennial project. As you know, access to these leases will be via existing or approved facilities. Our primary concern relates to the impacts of subsidence on wildlife. Our opinion on this issue was relayed to the Company on October 12, 1988 and copy forwarded to Susan Linner at your office.

Thank you for an opportunity to provide comment.

Sincerely,


William H. Geer
Director



STATE OF UTAH
NATURAL RESOURCES
Wildlife Resources

the Eastern Region • 455 West Railroad Avenue • Price, UT 84501-2829 • 801-637-3310

File ACT/007/019 #2

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
William H. Geer, Division Director

October 12, 1988

RECEIVED
OCT 14 1988

Mr. Sam Quigley
Andalex Resources, Inc.
Centennial Mining Project
P.O. Box 902
Price, UT 84501

DIVISION OF
OIL, GAS & MINING

Attn: Mike Glasson

Dear Sam:

In regard to your recent inquiry concerning the relationship of subsidence from coal mining operations to wildlife, the following is offered for your information. Generally speaking, the effects of subsidence on wildlife lie in two general arenas: hydrologic ecosystems and terrestrial ecosystems.

Subsidence can result in drying up of impounded water bodies or modification to flows at seeps, springs, perennial or even intermittent channels. This can result from the capture in subsidence cracks of water and its resultant migration into other geological strata. Some strata may not allow water to discharge to the surface. Such an impact can have serious consequence to a local area's wildlife in that drinking water may become reduced in value or unavailable to terrestrial animals.

Seeps or springs providing flow during periods when wildlife are present represent a critical valued resource to all of the local areas wildlife. Most wildlife have small and limited home ranges. As a result, when one of these critical valued aquatic resources is lost, the animal does not have the physical capability of "packing his bags" and moving to another area of acceptable habitat. Those few species that have such a physical capability usually find the home ranges in adjoining areas already filled to capacity. It is for that reason that the Division holds firm to the philosophy that each and every seep and spring is a critical resource for wildlife.

In the event that coal mining results in subsidence that impacts the flows at seeps and springs, mitigation is

Sam Quigley
Attn: Mike Glasson
Page 3
October 12, 1988

whether that is a valid concern in that small rodents are extremely abundant. Since subsidence occurs over such small and limited areas, impacts to rodents would not be of consequence. Most rodents probably have trouble with their burrows caving in at times anyway. Thus, they are adapted to digging around such cave-ins. It is likely that cracks and surface displacement created by subsidence represent escape cover for small animals, and to some degree, access points for burrowing animals.

Subsidence has caused escarpment failures. When raptor nests exist in the escarpments, such failures would be of negative consequence, since raptors typically return to reuse their nests over the years. Where escarpment failure occurs and there are no raptor nests, such failure could create suitable raptor nesting habitat.

Many surface displacement lines from subsidence in Utah's coal mining areas are utilized extensively by big game as travel corridors. These fracture lines, once they become filled in, represent a flat trail on which the animals can easily walk around the contours of a mountain or across ridge tops.

It is hoped that the aforementioned information will prove useful to you in coal leasing decisions. If the Division can be of any further service, please coordinate as appropriate with the Southeastern Region's Resource Analyst, Larry Dalton (Telephone 637-3310).

Sincerely,



Larry B. Dalton, Wildlife Program Manager
Resource Analysis/Habitat Protection

LBD/dd

cc: Darrell Nish, DWR
Susan Linner, DOGM
Clark Johnson, USFWS
Linda Seibert, BLM



Norman H. Bangerter
Governor

Dale C. Hatch, C.P.A., J.D.
Director

Michael E. Christensen, Ph.D.
Deputy Director

State of Utah
OFFICE OF PLANNING AND BUDGET

116 State Capitol Building
Salt Lake City, Utah 84114
(801) 538-1027

Orig: Mine file
cc: S. Linner

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DIVISION OF
OIL, GAS & MINING

November 30, 1988

Mr. Lowell Braxton
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
355 West North Temple
Salt Lake City, Utah 84180-1203

007-019

SUBJECT: Underground Lease Additions at Andalex Resources, Inc., Centennial
Project, Carbon County
State Application Identifier #UT881020-020

Dear Mr. Braxton:

The Resource Development Coordinating Committee of the State of Utah has reviewed this proposed action. We have received no comments from potentially affected state agencies.

The Committee appreciates the opportunity of reviewing this document. Please address any other questions regarding this correspondence to Carolyn Wright (801) 538-1535.

Sincerely,

Michael E. Christensen

Michael E. Christensen
Deputy Director

MEC/jw

OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT
RELATEDNESS REPORT

ACT NO: ACT007019
STATE: UT
NAME: TOWER RESOURCES INC

DATE: 18 JAN 89
TIME: 11:47:16
PAGE: 1

APPLICATION INFORMATION
=====

ST	APPL #	MSHAID	PERMIT	PPERMIT	APPID
UT	ACT007019	4201474	ACT007019		060105

NAME: TOWER RESOURCES INC
ADDR: PO BOX 1027 PRICE UT 84501

* SYSTEM RECOMMENDATION FOR ACT007019 = ISSUE *

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TOWER RESOURCES, INC.
CENTENNIAL PROJECT

TECHNICAL ANALYSIS

Tower Resources is a corporation organized and existing under the laws of Delaware and qualified to do business in Utah. The Centennial Project involves both fee and federal coal leases. The project is located approximately 10 miles north, northeast of Price, Utah, in Carbon County, Township 13 South, Range 11 East. The property contains approximately 2,240 acres. Two hundred acres is fee surface and coal leased from the Zions Security Corporation. The remaining 2,040 acres is federal lease. This property includes Deadman Canyon, Starpoint Canyon and Straight Canyon with coal outcropping along the cliffs between 7,000 and 7,700 feet elevation. The topography is very rugged, the Book Cliffs being dissected by box canyons created by ephemeral streams. Large sandstone boulders eroded from the cliffs are scattered along the sides of the canyon. The land is undeveloped, used primarily for grazing. There are no perennial streams or bodies of water on the property.

Historically, coal mining has been the only industry in the permit area and there are several abandoned mines located on the property.

Estimated coal reserves in the three beds of a mineable thickness totals 50 million tons, with recoverable coal estimated at 29 million tons. Production schedules project an increase from 200,000 tons the first year to full production of about 1,200,000 tons in the fourth and fifth years. At this rate, the life of the mine is estimated to be about 30 years, with theoretical life of about 40 years due to the existence of additional unleased federal coal economically accessible only through Tower's operation.

The initial mining method being employed is pillar development utilizing one continuous miner section of equipment with final pillar extraction planned. An additional five mining units will be added according to production schedule, with mining development occurring simultaneously in each of the three seams. Longwall mining may be introduced later if conditions prove acceptable; however, the basic overall mine plan will not be changed.

Tower Resources is currently operating the Pinnacle Mine which began on October 3, 1980. The Pinnacle Mine is located and operating on Zions fee lease. The mine plans call for advancement of operations onto federal leases contained within the proposed mine plan area and the simultaneous operation of a mine in each of three mineable coal seams present; the lower Sunnyside Seam, the Gilson Seam and the Aberdeen Seam, current mining activities occurring in the Gilson Seam. The coal is classified as high volatile B bituminous in both the lower Sunnyside and Gilson seams and as high volatile A bituminous in the Aberdeen Seam.

The Mining and Reclamation Plan for the Pinnacle Mine was given final approval on September 5, 1980, under the interim program. The submittal for the remaining part of the Centennial Project was received by the Division on January 19, 1981. This submittal has since been modified and addendums supplemented. The application was deemed complete on September 28, 1981.

Existing Environment and Operations

The permit area is in the Book Cliffs which is the major physiographic feature in the region. The Cliffs rise from a base at approximately 5,500 feet in elevation to over 8,500 feet. Numerous canyons dissect the Book Cliffs. The permit area exhibits extreme topographic relief and is mountainous with steep cliffs and deeply incised drainages.

Mountain brush, desert shrub, pinyon-juniper woodland, sagebrush-grass, conifer-aspen and minor stream side vegetative types cover the total mine plan area. Most of the area is covered by a mountain brush type while the pinyon-juniper woodland type is predominant in the mine mouth area as well as the access routes and utility corridors. There have been no known threatened or endangered species observed in the lease area.

There are no perennial streams or bodies of water on the property. The reader is referred to a final draft Environmental Statement, Site Specific Analysis, Part 2, prepared by the Department of the Interior, 1979.

Summary of Compliance

817.11 Signs & Markers

Applicant's Proposal

Signs used on permit area are of a uniform design, placed to be easily seen, made of durable material and conform to local laws and regulations.

Identification signs showing the company name, business address, telephone number and the identification number of the current regulatory program permit authorizing the underground mining activities have been placed at all access points to the permit area.

The perimeters of all areas affected by surface operations will be clearly marked.

There are no perennial streams or a stream with a biological community on the permit area, therefore, no buffer zone markers will be necessary.

No surface blasting will be conducted by the applicant with the exception of highwall construction. When blasting does occur, signs and flagging will be posted as required under UMC 817.11(e)(f).

Compliance

Applicant will comply with this section.

817.13-.15 Casing and Sealing of Exposed Underground Openings

Applicant's Proposal

All exploratory drill holes were cemented above and below the coal seams for a minimum of 20 feet, including a concrete surface plug. The remainder of the hole is filled with drill cuttings. In the case of a shallow hole, the entire length is cemented.

Water wells have been cased with steel casing and will be maintained. After mining is completed, casings will be removed when possible and holes sealed as above.

Portal seals will be constructed of solid concrete blocks with mortared joints, double walled construction. The seals will be located far enough back from the surface so that reclamation efforts will not have an adverse effect on the seals. An illustration of proposed portal seals is shown in 9-10-81 plans.

Stipulations

None.

Compliance

Applicant complies with sections 817.13-.15.

817.21-.25 Topsoil

Applicant's Proposal

Topsoil has been removed from approximately five acres and includes poorly developed soils. Using dozer and front end loaders, the soil was scraped from the surface and dumped at a site on facility location. The topsoil storage area is shown on Plate VII of the MRP. The topsoil was removed as a separate operation from areas to be disturbed by surface installations such as roads and areas upon which support facilities are sited. Topsoil has been segregated, stockpiled and protected from wind and water erosion and contaminants through revegetation. Disturbed areas no longer required for the conduct of mining operations have been graded and revegetated. Once the topsoil was removed, the canyon bottom was leveled and culverts installed to prepare the area for building construction.

Upon reclamation, topsoil will be hauled to the area by end dump trucks, piled and spread using a grader. Where possible, soil will be distributed along the contour. The thickness of the re-established soil will be consistent with soils in the vicinity and will be sufficient to support the vegetation equal to or superior to premining history. No topsoil substitute has been proposed. If additional topsoil is needed, it will be hauled into the minesite.

A letter from Theron B. Hutchings, Utah State Soil Scientist, indicating a negative determination of Prime Farmland has been provided.

817.21-.25 Topsoil (continued)

Stipulations

817.22 Applicant must provide to the Regulatory Authority within 60 days of permit approval prior to disturbance of area the methods to be used for topsoil removal, the depth of topsoil to be removed and the volume of topsoil and subsoil to be removed.

Before applicant uses any substitute material as a topsoil, adequate chemical and physical analyses proving suitability must be performed on the proposed soil material and data submitted and approved by to the Division.

817.23 Applicant must submit to the Division within 60 days of permit approval and prior to disturbance of area plans for storage and protection of topsoil removed from future disturbances. If possible, the length of storage for each topsoil should be included.

817.25 Applicant must submit to the Division topsoil analyses data providing information on the pH, soil content of N, P, K and trace elements prior to topsoil redistribution.

Compliance

Applicant will comply with these sections when these stipulations are met.

817.41-.57 Hydrologic Balance

Applicant's Proposal

Tower Resources' Centennial Project will be comprised of three mines located closely together in Deadman Canyon. The Pinnacle Mine is presently in operation mining the Gilson Seam. The other two mines will be the Apex Mine in the lower Sunnyside Seam and the Aberdeen in the A Seam. The Centennial Project is to be located in the Right Fork of Deadman Canyon. This is an ephemeral drainage flowing in response to direct runoff and eventually reaching the Price River some 12 miles to the south. The projected minesite will have a disturbed area of 24.25 acres and an undisturbed watershed area of 805.50 acres. Surface runoff from the disturbed area is controlled by five separate sedimentation ponds. The Pinnacle Mine is controlled by Ponds A and B. The Apex and Aberdeen mines will be controlled by ponds C, D and E. Berms will be placed on the lower edge of all disturbed areas to prevent runoff from reaching natural drainages before it has passed through the sedimentation ponds. The main canyon undisturbed drainage will be routed through a 42-inch culvert located beneath the minesite. The location of all diversion structures and sedimentation ponds are included in MRP--Plate I.

Diversion and Conveyance of Overland Flow

The major undisturbed drainage in the minesite area will be routed under the site through large culverts. All culvert diversions are designed to carry the runoff from a 50-year, 24-hour precipitation event in the area. The actual culvert sizes Tower Resources will use are sufficient to carry the runoff from a 100-year, 24-hour storm in Price, Utah. Culverts will be placed

817.41-.57 Hydrologic Balance (continued)

to drain on a minimum slope of 0.0556 percent (1 foot/18 feet). Each culvert will be fitted with a trash rack at the inlet to help prevent plugging and will discharge onto a protected surface (i.e., riprap, conveyor belting, flexible downspouts, etc.) to prevent scouring and erosion. The use of energy dissipators will be employed as necessary to reduce velocities and prevent erosion from culvert discharges. Culverts shall be inspected regularly and cleaned as necessary to provide for passage of designed flows. Inlets and outlets shall be maintained so as to prevent plugging or undue restriction of water flow.

Diversion ditch locations and direction of flow are shown in MRP--Plate I. A diversion ditch typical sheet is included in MRP--Appendix P. All diversion ditches are designed to carry the runoff from a 100-year, 24-hour precipitation event in the area. Diversions along the upslope side of the road will be as per specifications on the haul road design. All diversions will be maintained so as to pass the volumes of water for which they were designed. Sloughage will be cleaned out along with regular road maintenance procedures and any blockage will be removed as soon as practical after occurrence. Velocities will be controlled as needed to prevent excessive scouring.

All diversions are temporary and will be removed upon final reclamation.

Sedimentation Ponds

The proposed sedimentation ponds have been designed to fully contain the expected runoff and sediment load from a 10-year, 24-hour precipitation event in the area. In addition, each pond has an overflow capacity in excess of that required for a 25-year, 6-hour event. Each pond has been designed and will be constructed under the supervision of a qualified, registered professional engineer. All pond structures will be regularly inspected by a licensed individual as required by law. Measuring devices will be installed to determine when the ponds have filled with sediment to the clean out level. Ponds will be cleaned at a minimum when sediment load reaches 20 percent of pond volume. Sediment removed shall be disposed of at the Carbon County Sanitary landfill. Carbon County has consented in writing to this action (MRP--Appendix M). Water monitoring stations will be established at the outlet of the ponds. Sample parameters and frequencies shall be as per specifications of the NPDES permit.

Sedimentation ponds will be constructed with principal spillways three feet below and emergency spillways two feet below the top of the embankments. The top width of the embankment shall not be less than $(H + 35)/5$; H is the height of the embankment. The embankment upstream and downstream side slopes will not be steeper than 2.0 h:1v. Native material will be used for embankments where practical. Fill will be placed in lifts not to exceed 15 inches and compacted prior to placement of the next lift. Compaction of all fill material for embankment slopes shall be at least 95 percent. Riprap will consist of substantial (nonslacking) rock material of six inches or greater size. The top and external slopes of the embankment shall be planted with an approved seed mix to prevent erosion and promote stability.

817.41-.57 Hydrologic Balance (continued)

Prior to construction, the areas of pond construction shall be examined for topsoil, and if present in removable quantities, such soil shall be removed separately and stored in an approved topsoil storage location.

Stipulations

817.43(f)(1) Channel linings shall be incorporated should the flow velocity in the diversion ditch exceed five fps. Riprap used for linings (excluding sand and gravel) shall comply with the requirements of Section 817.72(b)(1)(iv).

Compliance

Applicant will comply with these sections when these stipulations are met.

817.59 Coal Recovery

Applicant's Proposal

Room and pillar design will be employed with development extraction estimated at 35 percent of the reserve. Once development is completed, pillar extraction will commence. Final pillar extraction will result in a total recovery rate of approximately 65 percent. Development work will be done by a continuous miner unit.

The longwall mining method will be looked at during initial mine development and production. Longwall mining would be installed should any seams prove adaptable to longwall mining.

There are three economic seams present on the property and mining plans are based on simultaneously operating a mine in each seam. Plates V-R, VI-R, and VII-R show the mine plans of underground workings.

Stipulations

None.

817.59 Coal Recovery (continued)

Compliance

Applicant complies with Section 817.59.

817.61-.68 Explosives

Applicant's Proposal

All blasting performed underground will conform to both State and Federal regulations governing explosives and blasting in underground coal mines.

All blasting operations will be conducted by persons who possess a valid certificate as required by Title 30 of the Code of Federal Regulations.

Surface blasting, consisting of highwall preparation for portal facilities, would be done in compliance with Chapter VIII, 817.61-.68 of Title 30 of the Code of Federal Regulations.

Explosives are stored in the area shown on the Surface Facilities Map (8-31-81). The magazine is a small concrete block structure.

Stipulation

The location of the explosive magazine shall comply with regulations regarding distances from power lines, fuel tanks, storage areas or other possible sources of fire.

Compliance

Applicant will comply with these sections when this stipulation is met.

817.71-.74 Disposal of Underground Development Waste and Excess Spoil

Applicant's Proposal

Rock waste which is developed will consist of roof rock shot down in the construction of ventilation overcasts. This rock will be sloped away from the outside of the overcast and placed in such a manner to prevent sterilization of any coal reserve. The applicant's mine has no faults nor are any anticipated. In the unlikely event that a rock problem (a fault) is encountered, the applicant will consult with USGS to determine the best underground storage for the waste. Storage of waste would most likely be in every other cross-cut to maintain access to the pillars for final extraction. (Add. C-D p.3)

Stipulation

In the event a rock waste problem is encountered, the applicant shall consult with regulatory agencies concerning disposal areas.

817.71-.74 Disposal of Underground Development Waste and Excess Spoil
(continued)

Compliance

Applicant will comply with these sections when this stipulation is met.

817.81-.83 Coal Processing Waste Banks

Applicant's Proposal

At the present time, there will be no coal processing waste. All raw coal is hauled from the area. If, in the future, it is decided that a processing facility is to be incorporated, waste or reject will be taken to an approved refuse disposal site. There will be no return of waste to underground workings (pages 30-39).

Compliance

Applicant complies with sections 817.81-.83.

817.89 Disposal of Noncoal Waste

Applicant's Proposal

All combustible material will be collected in trash containers and disposed of at the county landfill. Oil and grease generated at the minesite will be stored in barrels in an area covered by the applicant's SSCP plan and disposed of at the landfill.

Approval from Carbon County granting permission to dispose at the county landfill is included in MRP as Appendix M.

Compliance

Applicant will comply with this section.

817.95 Air Resources Protection

Applicant's Proposal

Fugitive dust control measures have been planned for access road dust and exhaust mine dust. The following control methods will be implemented at the mine: water spray systems, chemical stabilization and enclosure of coal conveyor systems.

Emission estimates are included (Exhibit III-E) in the form of an emission inventory. This inventory has been reviewed and approved by the Utah Bureau of Air Quality and the EPA.

At the present, no air quality monitoring program is proposed.

Stipulations

817.95(b) Applicant shall implement the following additional fugitive dust control measures:

- (5) Restricting vehicle speed.
- (6) Stabilization of the surface of areas adjoining roads.
- (7) Restricting the travel of unauthorized vehicles.

817.95(c) Applicant shall implement a water spray program during operations involving topsoil removal and stockpiling.

Compliance

Application will comply with this section when these stipulations are met.

817.97 Fish and Wildlife

Applicant's Proposal

The mine plan area is located in the West Tavaputs Plateau, an area which supports about 360 vertebrate species of wildlife. The main game species in the mine plan area are mule deer, mountain lion, black bear, elk and cottontail rabbits, with mule deer being the most important wildlife resource in the area. No known threatened or endangered species have been found on or near the lease area. Two golden eagle nests have been found within the lease area, but neither are in areas currently proposed for disturbance. There are no aquatic habitats in the mine plan area.

817.97 Fish and Wildlife (continued)

The entire area is high priority winter range for mule deer and elk. Tower Resources has committed to make every possible effort to minimize disturbance to wildlife habitat and to enhance habitat during reclamation. However, the applicant has not made a firm commitment to species, density and grouping of the shrubs that will be used for enhancement. Riparian habitats along the banks of ephemeral streams have been and will be disturbed by mining activity. Tower Resources has committed to restore these areas and has submitted a revegetation seed mix recommended by the BLM. The existing transmission line has been determined to be raptor-proof by the Utah Division of Wildlife Resources. Transmission lines to proposed facilities will be constructed according to the same specifications and pole design.

Stipulation

817.97(d)(9) Within 180 days of permit approval, the applicant must submit to the Division of Oil, Gas, and Mining and the Office of Surface Mining (OSM) for approval, a plan detailing species of shrub seedlings to be planted for wildlife enhancement, including density, diversity, and groupings of plantings for wildlife.

Applicant will comply with this section when this stipulation is met.

817.99 Slides

The applicant has included no information on the possibility of slide damage at the minesite.

Compliance

Applicant will comply with this section.

817.100 Contemporaneous Reclamation

All disturbed areas no longer required for the conduct of mining operations were immediately revegetated. In the future, any area no longer required for operations will also be immediately reclaimed and revegetated (Page 46, Volume I, MRP).

817.100 Contemporaneous Reclamation (continued)

Stipulations

None.

Compliance

Applicant complies with section 817.100

817.101-.106 Backfilling and Grading

Applicant's Proposal

All disturbed surface areas will be backfilled and graded in accordance with the reclamation time-table--Chapter III, Part E. All areas will be graded and restored to a contour approximate to the original contour--capable of supporting the approved postmining land-use (Section III-E, 3.4). Final reclamation contours are indicated on Plates V and II.

There will be no acid or toxic-forming materials deposited or stored in the mine area (Section III-8,10.3)

Stipulation

817.101(b)(5)(iii) Applicant shall reduce all highwalls to achieve a minimum static safety factor of 1.3 after reclamation.

Compliance

Applicant will comply with this section when this stipulation is met.

817.111-.117 Revegetation

Applicant's Proposal

Tower Resources, Inc., chose to use the range site method in collecting baseline vegetation data. This method has been tentatively approved by the Office of Surface Mining (OSM) "as an alternative standard for measuring revegetation success" pending assurance by Division of Oil, Gas and Mining that the technical guides relied upon "in measuring success and the techniques actually utilized are ones acceptable to Office of Surface Mining" (letter from Office of Surface Mining to Division of Oil, Gas and Mining, September 4, 1981).

Two range sites occur in potential disturbed areas, with areas of an additional site making up less than 1/10 of an acre in total area.

817.111 - .117 Revegetation (continued)

The mountain stony loam (oak) type occurs on alluvial fans at an elevation around 2,165 m (7,100 ft). Slopes are 15 to 25 percent and east facing. Average annual precipitation is 30 to 41 cm (12 to 16 inches). Dominant plant vegetative cover averages 58 percent, with a total annual production of 785 pounds per acre, air dry. There are 2,530 individuals of woody species per acre. -

The upland stony loam (pinyon-juniper) woodland type occurs on alluvial fans and steep mountain slopes at elevations ranging from 2,160 to 2,225 m (7,100 to 7,300 ft). Slopes are 15 to 65 percent and east, south and north facing. Average annual precipitation is from 30 to 41 cm (12 to 16 inches). Total vegetative cover averages 20 percent, with 1,252 pounds per acre total annual production, air dry. Density of woody species is 716 individuals per acre.

The applicant has indicated that temporary contemporaneous reclamation and seeding will be done following completion of construction in a season that gives promise of optimum conditions for establishment of vegetation, normally late fall. Final reclamation will begin after mining activities cease and surface structures are removed. The applicant has submitted a revegetation plan, including recommendations from the Bureau of Land Management (surface owner) for a revegetation seeding mix and plans for seeding, mulching and fencing revegetated areas. (MRP pages 92-93).

Stipulation

780.81 (b)(5) Within 180 days of permit approval, the applicant must submit to the Division of Oil, Gas and Mining and the Office of Surface Mining (OSM) and BLM for approval, a specific revegetation plan, detailing species and amount (in pure live seed) to be used, seeding methods and seedbed preparation, mulching and weed control techniques, management practices and monitoring programs to be used in revegetation. This plan shall be submitted to the Regulatory Authority for approval before permanent revegetation begins and must provide for establishment of a permanent, effective and diverse cover.

Applicant will comply with these sections when this stipulation is met.

817.121 - .126 Subsidence

Applicant's Proposal

There are no structures or perennial streams on the land to be undermined.

Tower plans for 12 subsidence monitoring stations to be established, eventually, as mining progresses. Each station will be set up prior to removal of any pillars near a particular station. These stations will be set up for easy monitoring from an established survey point making it possible to detect both vertical and horizontal movement. The stations will be set up on a grid system over and outside the permit area.

817.121-.126 Subsidence (continued)

Stipulation

Surface owners should be notified six months prior to mining under their property. The notification should include:

1. Identification of specific areas in which mining will take place.
2. Dates of the underground operations that could cause subsidence.
3. Measures to be taken to prevent or control adverse surface effects, if any occur

Compliance

Applicant will comply with these sections when this stipulation is met.

817.131 Cessation of Operations: Temporary

The applicant has not addressed this section.

Stipulation

The applicant must address this section, and comply with this regulation should temporary abandonment take place.

Compliance

Applicant will comply with this section when this stipulation is met.

817.133 Postmining Land-Use

Upon completion of Tower Resources' mining operation, the land will continue to be used for grazing and hunting. The limited resources, both physical and scenic will dictate no further change in the land status. All disturbed areas shall be restored in a timely manner to conditions that are capable of supporting the uses which they were capable of supporting before any mining.

Stipulations

None.

Compliance

Applicant complies with section 817.133

817.150 - .180 Roads/Transportation Facilities

Applicant's Proposal

The access/haul road to the minesite was an existing county road and has been upgraded with new surface gravel, culverts and drainage ditches. The applicant has submitted a letter from Carbon County granting permission to use the road and acknowledgment from the county that mining activities will be taking place within 100 feet of said road (Appendix M).

The grade of this road ranges from less than one percent to approximately five percent in the canyon areas. The road never exceeds ten percent grade (see Profile of Access Road, August 26, 1981). Cut slopes are designed to be 1.5 horizontal to 1.0 vertical. A diversion ditch will be constructed running parallel to the road opposite the cut slope. The road surface is sloped three percent toward the ditch.

The road will be constantly maintained and all repairs done in a timely manner. The gravel surface is chemically treated with a magnesium chloride solution to control dust.

Upon completion of mining, the road will be graded and the terrain re-established as near as possible to the original contour.

Compliance

Applicant complies with section 817.150 - .180

817.181 Support Facilities and Utility Installations

Applicants' Proposal

Surface facilities for the Pinnacle Mine have been constructed (May 1980 - February 1981) with minor modifications presently being approved. The existing facilities are shown on Plate I and listed in MRP III-B-1. Additional support facilities to be constructed for the remaining mines are shown on Plate I. Previous construction and any future construction has been or will be located and carried out so as to prevent and control erosion, siltation, water pollution, and prevent damage to wildlife and related environmental values.

Compliance

Applicant will comply with this section.

Cultural Resources
(Pinnacle) Tower Resources, Inc.
TEA

Part A. Description of Existing Environment

Two cultural resources surveys have been conducted over portions of the (Pinnacle) Tower Resources Mine Plan area. The first survey (Walker 1976) was conducted over approximately the northern one-half of the canyon bottom of the Right Fork of Deadman Canyon. During these investigations two historic mines were apparently observed but not recorded. These mines were later recorded adequately by the Hawkins and Seward 1980 investigations which surveyed approximately the southern one-half of the canyon bottom of the Right Fork of Deadman Canyon. These two mines are the Zion Mine (42Cb178) and the Rio Grande Mine (42Cb178). The Zion Mine was a coal mine which was active from 1925 to 1948.

The Rio Grande mine was also a coal mine and was active for a short period of time from 1940 to 1956.

Neither site is considered to be eligible for listing in the National Register of Historic Places. The significance of these mines is contained in the spatial arrangement of their surface structures and in the building construction styles employed there. These aspects have been documented.

Part B. Description of Applicant's Proposal

The applicant has caused to be identified and described the cultural resources located within the canyon bottom of the Right Fork of Deadman Canyon where all surface disturbing activities have or will take place. The company has not however, considered the potential adverse effects of subsidence on any other cultural resources which may be located outside of the canyon bottom.

The applicant has not provided measures to be used to minimize or prevent impacts to the two mine sites as they are not considered to be significant/eligible.

Part C. Evaluation of Compliance

As previously described under Part A, two cultural resources surveys were conducted which located, identified and evaluated the significance of all cultural resources located. However, further research is necessary to completely document both sites. In accordance with Section 106 of the Historic Preservation Act of 1966 and the Advisory Council's "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800) OSM has consulted with the Utah State Historic Preservation Officer and sought a determination of "No Effect." The SHPO has not responded as yet, however, a response is forthcoming. Discussions with the SHPO staff indicate that they are in agreement with OSM opinion that the two sites are not eligible and thus a "No Effect" determination is appropriate. As soon as OSM receives this documentation OSM will be in compliance. Tower Resources will be in compliance if they adhere to the proposed stipulations (See Section F).

Part D. Revisions to Applicant's Proposal (None)

Part E. Reevaluation of Compliance (None)

Part F. Proposed Special Stipulations

1. If during the course of mining operations previously unidentified cultural resources are discovered the applicant shall ensure that the site(s) is not disturbed and shall notify the regulatory authority. The operator shall ensure that the resource(s) is properly evaluated in terms of National Register Eligibility (36 CFR 60.6). Should a resource be found eligible for listing in consultation with the regulatory authority, the land managing agency (if the site is located on Federal lands) and the SHPO, the operator shall confer with and obtain the approval of these agencies concerning the development and implementation of mitigation measures.

Justification: To ensure (pursuant to 36 CFR 800.7) that sites are not inadvertently destroyed.

2. Within 90 days of acceptance of approval, the company will submit to the regulatory authority and the Utah State Historic Preservation Officer, the completed research documentation on the Zion and Rio Grande Mines which should document the function of the structures located at these mines. This research can be submitted as a brief addendum to the existing site forms.

Justification:

To insure that the two sites have been completely and accurately recorded because of their eminent destruction.

Part G. Summary of Compliance

If the company complies with the proposed special stipulations the company will be in compliance with the regulations and OSM will be in compliance with pertinent cultural resources legislation. OSM will have fulfilled its responsibility under the Executive Order 11593, the National Historic Preservation Act of 1966 and the Advisory Council's "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800).

Part H. Proposed Departmental Action**Approve Plan With Proposed Stipulations**

There are no sites within the area of direct impact (canyon bottom) which are listed on eligible for listing in the National Register of Historic Places. Thus the adverse impact resulting from their destruction is not "significant" as to require mitigation.

Part I. Residual Impacts of Proposed Departmental Action

Both sites within the canyon bottom area will be completely destroyed. Although these sites do not meet the criteria for nomination to the National Register they may be valued by the local residents and it is possible that local museums or historical groups may be interested in the sites for obtaining "salvageable" items of historical interest. These sites may in the future have been deemed "significant" even though not presently considered so. Sites which are not mitigated or avoided will be permanently lost. Cultural resources are a nonrenewable resource, and once lost there is an irretrievable loss of scientific information.

Part J. Alternatives to the Proposed Action

Prohibit mining of the areas where the sites exist. However, this does not appear to be reasonable or feasible.

References Cited

Hawkins, Bruce and Gregory L. Seward

1980 An Archaeological Survey of Portions of Fiasco Canyon, Starpoint Canyon and Straight Canyon near Price, Utah. Unpublished ms., prepared for Tower Resources - Amca Coal Company. Available from the Utah Division of State History, Salt Lake City, Utah.

Walker, J. Terry

1976 Archaeological Reconnaissance in Deadman Canyon, Carbon County, Utah. Unpublished ms., prepared for Centennial Development Company. Available from the Department of Anthropology and Archaeology, Brigham Young University, Provo, Utah.

Environmental Assessment
Tower Resources, Inc.
Centennial Project

Background and Applicant's Proposal

The proposed mine plan area is located in the Book Cliffs coal field in the Right Fork of Deadman Canyon, Carbon County, Utah. Coal outcrops along the cliffs between 7,000 and 7,700 feet elevations. The topography is very rugged, the Book Cliffs being dissected by box canyons created by ephemeral streams. No perennial streams are found in the area.

Tower Resources, Inc., the designated operator, along with AMCA Coal Leasing, Inc. controls all Federal and fee mining leases within the proposed area. Tower Resources, Inc. has been operating the Pinnacle Mine, which is located and operated on Zion fee lease, since October 3, 1980. The applicant's proposal calls for an advancement of operations onto federal leases contained within the proposed mine plan area. The federal leases are: SL-027304 (120 acres), SL-063058 (240 acres) and U-010581 (1,682.39 acres). The Federal government has surface ownership on 1150 acres, with the remaining acreage being on privately owned surface. The property encompasses approximately 2240 acres, 200 of which is fee surface and coal leased from the Zions Security Corporation, with the remainder being federal lease.

Tower Resources Centennial Project is located approximately 10 miles north, northeast of Price, Utah, in Carbon County, T. 13 S., R. 11 E. The project includes three underground mines: the Aberdeen, the Pinnacle, and the Apex Mines. The mineable seams are the Aberdeen, the Gilson, and the lower Sunnyside, in ascending order. The Pinnacle Mine is presently operating in the Gilson seam. The Apex Mine will operate in the lower Sunnyside seam and the Aberdeen Mine in the Aberdeen seam.

The applicant proposes three portals, one in each seam, located in the Right Fork of Deadman Canyon. The initial mining method being employed is pillar development utilizing one continuous mining section of equipment with final pillar extraction planned. An additional 5 mining units will be added, with mining development occurring simultaneously in each of the three seams. Total surface disturbance, including all facilities, is estimated at 25 acres for the life of the mine. This includes a 5 acre right-of-way approved by BLM.

Estimated coal reserves in the three seams totals 50 million tons, with 29 million tons being recoverable. Production is expected to increase from 200,000 tons the first year to a full production of approximately 1,200,000 tons in the fourth and fifth years. At this rate, the life of the mine is estimated to be about 30 years.

Presently, Tower employs 50 people to operate and administer the mines. The company estimates that approximately 175 employees will be needed to produce 1,200,000 tons of coal by 1984. The company has nearly 300 applications on hand from those desiring to work at the mines. Of these applications, 1-1/2 percent are out-of-State, 3 percent are not local but are in-State, and 96 percent are from the Carbon-Emery County area. Depending on the competition for workers from other energy projects in the area, there should be no significant increases in population resulting from Tower's expansion of the local labor force.

The proposed mine plan has been covered in sufficient detail by the Final Environmental Impact Statement (EIS) on Development of Coal Resources in Central Utah, prepared by the U.S. Geological Survey (USGS) in 1979. The Centennial project is discussed in the Site-Specific Analysis under the name of Deadman Canyon. There have been some changes in the proposal since it was originally submitted under the 211 Regulations. The new proposal is not as comprehensive and far-reaching as that presented in the EIS.

The surface disturbance will be confined to a much smaller area than originally stated in the EIS; approximately 25 acres as opposed to 198 acres. The major reason for this difference is that off-site facilities which were being considered when the EIS was written are not currently a part of the applicant's proposal. Surface disturbance due to portals has also been reduced. Originally the proposal considered a portal in Starpoint Canyon and one in Straight Canyon. The new plan has consolidated the three portals in Deadman Canyon. All surface disturbance will be confined to Deadman Canyon.

The description of the existing environment and the discussion of environmental impacts and alternatives can be found in the previously mentioned EIS. The EIS covers the description of the existing environment and environmental impacts associated with approval of the proposed action very thoroughly. A brief description of alternatives is presented below. Other alternatives are discussed in the EIS.

Alternatives

Proposed Action (Alternative 1)

This action is approval with stipulations necessary to meet the requirements of SMCRA (PL-95-87), the approved Utah program, the conditions of the lease, and all other applicable Federal laws (Endangered Species Act of 1973, National Historic Preservation Act of 1966, Archeological and Historic Preservation Act of 1974, the Antiquities Act of 1906, etc.) The proposed stipulations can be found in Attachment #1 of the permit in this package. The environmental impacts have been identified in the site-specific analysis of Deadman Canyon in the Final EIS entitled Development of Coal Resources in Central Utah. No significant impacts to the human environment are anticipated due to approval of the proposed action.

The possibility of subsidence may pose a problem although this is not likely to be a major impact in the lease area. There will likely be some adverse effect on wildlife species sensitive to mining related activities. Impacts to wildlife should be minimal due to the relatively small area (25 acres) of surface disturbance and stipulations incorporated by the USFWS.

Disapproval (Alternative 2)

The disapproval alternative would preclude continued operation of the Pinnacle Mine and would prevent development of the Aberdeen and Apex Mines. This alternative could be chosen if the operation would cause significant, adverse impacts (i.e. irreparable harm to the environment) or irreversible change to the use of the resource. The Assistant Secretary for Energy and Minerals could choose this alternative after reviewing all pertinent technical and environmental analyses.

Additional surface disturbance of approximately 12 acres would be prevented by choosing this alternative. Part of the 50 people employed by Tower to operate and administer the mines would be laid off, and the additional 175 persons being hired for the development of the project would no longer be needed.

No Action (Alternative 3)

The no action alternative would have the same effect as the disapproval alternative discussed above. The applicant would be prevented from developing the underground mines and the socioeconomic impacts would be the same as those identified for disapproval.

Finding of No Significant Impact

The environmental assessment preceding the Finding of No Significant Impact identifies certain environmental impacts that could occur from the 440 acre Centennial Project proposed by Tower Resources Inc. The U.S. Geological Survey regional and site-specific Environmental Impact Statement (EIS) on the Centennial Project, previously called the Deadman Canyon Mine, analyzed the impacts of this mine, including the socioeconomic impacts and impacts to cultural resources and fish and wildlife. The environmental impacts identified in the EIS and those identified by Utah's Division of Oil, Gas and Mining (DOGM) will be appropriately mitigated to prevent harm to the environment by environmental protection measures specified in the mine plan and in the stipulations attached in the Technical Analysis (TA) prepared by the Utah DOGM.

Based on the evaluation of impacts in the previous USGS regional and site-specific EIS, we find that no significant impacts to the human environment would result from this operation. In fact, impacts will be at a much lower level than stated in the EIS because the actual operation will be on a smaller scale than originally presented in the EIS (see p. 2 of E.A.). Therefore, an additional EIS is not required, and I am recommending that this underground mine be approved with stipulations.

Richard E. Dawes

Richard E. Dawes

Oct 22, 1981

Date

Cultural Resources

Adequate survey, inventory rule description, identification and effect, mitigation, Register listings, SHPO clearance.

Socioeconomic

Adequate employment and associated community survey to assess effect or potential changes.

Subsidence

817.121, 816.26 Adequate geologic and engineering information, and resources to assess effect.

Fish & Wildlife

Mitigation plan.

Endangered species.

Construction of powerlines, fencing of toxic ponds, persistent use of pesticides.

Important in plan? yes / no / n/a

Stipulation required? yes no

Potential for significant effect? yes (no)

Comment

Signature/Date

the stipulations will bring the company into full compliance.

Judy Phaffy
10/6/81

yes

no

no

the company plans to increase employment by 250% by the year 1984. The company has adequate accommodations, however, to hire local workers; however, the competition between employers in the area, an migration would strain community facilities and services. Impacts addressed in Central Utah MTS, MTA.

St. Harnum
10/6/81

yes

yes

yes

straw reestablishment necessary to provide suitable habitat; agree with approach with add two steps (affected) regarding g. cages & deer winter range. There on site, no impacts expected. Already addressed

R. R. Harnum
10/5/81

Alluvial Valley Floors (AVF)

822. (785.19) Adequate description provided of stream channel valleys, to define geomorphology and hydrology, agricultural land use in terms of AVF. Significance to farming identified.

822. Adequate description provided (if AVF) of proposed procedures to reestablish essential hydrologic function.

Prime Farmland

823. Prime farmland determination. Analysis if soil predetermined segregation if prime farmland present.

Air Resources Protection

815.95 Inventory of emission and adequate controls provided

Bonding

800. Adequate identification of elements of reclamation plan, unit costs.

Important in plan?	Stipulation required?		Potential for significant effect?		Comment	Signature/ Date
yes no n/a	yes	no	yes	no		
						<i>Sammy Hallmark</i> 10/7/81
NO					Negative Determination. OK	<i>Sammy Hallmark</i> 10/7/81
						<i>J.D. Jandke</i> 10-7-81
No	No	No	No	No	LETTER FROM SCS STATE SOIL SCIENTIST STATING NO PRIME FARMLAND WITHIN PERMIT AREA	<i>Hoyt Johnson</i> 10-9-81
No	yes	No	No	No		

	Important in plan?	Stipulation required?	Potential for significant effect?	Comment	Signature/ Date
	yes no n/a	yes no	yes no		
816.103 Proper handling if any acid-forming or toxic-forming materials present.	N/A				KSK 10/9/81
816.104, 816.105 Thick or thin overburden?	N/A				KSK 10/9/81
816.71 to 816.74 Excess spoil (off mined area) engineering analysis.	N/A				KSK 10/9/81
816.81 to 816.93 Coal processing waste site regularly paved	N/A				KSK 10/9/81
<u>Revegetation</u>					
816.111 to 816.115 Vegetation information is adequate to determine seed mixes and treatment, revegetation success, supports postmining land use.	yes	yes	no	Agree with D.O.G.M. stipulation with modification (attached). 3 additional stipulations needed for compliance (attached).	J. Delaney 10/6/81
816.117 Land stocking rates	yes	no	no	Already addressed	J. Delaney 10/6/81
<u>Postmining Land Use</u>					
816.133 Postmining land use adequately described and achievement demonstrate	yes	no	no	in compliance	J. Delaney 10/6/81
<u>Roads</u>					
816. Roads identified; cutouts, drains sized, grades ok.					

Explosives

816.62 If blasting is conducted, was there a request for a survey and was a property survey performed?

816.64 Public notice provision adequately addressed.

816.65 Blasting plan, loading, timing, velocity, airblast, flyrock adequately controlled.

816.67 Monitoring if required.

816.68 Adequate log.

Backfilling and Grading, Excess Spoil

In steep slope, show compliance with Part 826

816.100, 816.101 Adequate timing of filling and grading

816.012 Postmining topography achieves stable slopes, proper construction (mesh with 816.44) of terraces, filling of depressions (816.106)

Important in plan?	Stipulation required?	Potential for significant effect?	Comment	Signature/ Date
yes no n/a	yes no	yes no		

Not applicable

LEGK 10/9/87

OK

LEGK 10/9/87

NO

see FEA

LEGK 10/9/87

Ground Water

816.0, 816.50, 816.51 Affected ground-water system (recharge, flow, discharge) delineated, uses identified, drawdown and quality effects projected.

816.52(a) Ground-water monitoring adequately designed (mesh with 816.52(b)).

816.53 Transfer of wells properly addressed.

816.14, 816.15 Drilled holes adequately cored, sealed.

NOTE: No Groundwater issues were identified by the STATE Review, in the T.M.

Geology - Coal Recovery

816.59 Adequate description of geology, stratigraphy, structure to substantiate mineability; USGS analysis.

816.103 Acid-forming or toxic-forming materials identified.

Important in plan?	Stipulation required?	Potential for significant effect?	Comment	Signature/ Date
yes no n/a	yes no	yes no		
X			STATE	Seamus P. Halliburton 10/7/81
X			STATE	Seamus P. Halliburton 10/7/81
X	NO	NO	STATE	Seamus P. Halliburton 10/7/81
X	NO	NO	STATE	Seamus P. Halliburton 10/7/81

Tower Resources

Summary of Findings

Technical and Environmental Analysis

Important in plan?	Stipulation required?	Potential for significant effect?	Comment	Signature/ Date
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yes no n/a yes no yes no

Soil

816.21 Soils are adequately investigated (mapped, analyzed, quantified) in order to plan for removal, protection, and replacement.

YES

YES

YES

STATE OF UTAH WRESTLE
STIP & OSM COUNCILS

J.D. Jewette
10-7-81

816.22 Appropriate soils are to be removed or substitute materials identified through appropriate analysis

YES

YES

NO

"

J.D. Jewette
10-7-81

816.23 Soil storage areas are identified, properly placed

YES

YES

NO

"

J.D. Jewette
10-7-81

816.24, 816.25 Soil replacement procedures properly address preparation of soil, thickness, compaction, erosion protection

YES

NO

YES

"

J.D. Jewette
10-8-81

Hydrology

816.34 Necessary replacement water supplies adequately identified

NO

NO

?

the STATE of UTAH hydrology
engineers identified the
issues in the Tower Resources
T.A. In my review of
the T.A. only the issues were
investigated. All other related
hydrologic issues are actually
dependent upon the states
findings which are marked with
an (asterisk). I feel that the
State review was adequately performed,
to identify such issues and
therefore go along with their
findings in these other areas.

S.E. Hoffmann
10/7/81

816.41, 788.19(c) Changes to prevailing hydrologic balance identified and minimized

NO

NO

NO

S.E. Hoffmann
10/7/81

Surface Water

	Important in plant?	Stipulation required?		Potential for significant effect?		Comment	Signature/ Date
	yes no n/a	yes no	yes no	yes no	yes no		
816.42 Disturbed area drainage directed through sediment control unless exempted. Effluent limits set (815.45, 816.46, 816.47).	no	no	no	no	OK		<i>Sumner F. Hallmark</i> 10/17/81
816.43 Overland flow diversions properly designed with energy dissipaters, sediment traps, trash racks. Discharge to underground mines approved (816.35). Reclamation addressed (816.56).	no	no	no	no	OK		<i>Sumner F. Hallmark</i> 10/17/81
816.44 Stream diversions properly designed, temporary and permanent. Reclamation addressed (816.56).	yes	no	no	yes	OK		<i>Sumner F. Hallmark</i> 10/17/81
816.48 Acid-forming and toxic-forming material identified, potential water pollution controlled (816.103).	no	no	no	no	OK		<i>Sumner F. Hallmark</i> 10/17/81
816.49 Permanent impoundments meet dam construction requirements and quality, quantity requirements.	N/A						
816.52(b) Surface water inventorying adequately designed (mech with 816.52(a)).	no	no	no	no	STATE OK		<i>Sumner F. Hallmark</i> 10/17/81
816.57 Stream buffer zones are addressed as necessary.	N/A				STATE		<i>Sumner F. Hallmark</i> 10/17/81



United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement

BROOKS TOWERS

1020 15TH STREET

DENVER, COLORADO 80202

JIM

OCT 30 1981

MEMORANDUM

To: James R. Harris, Director, OSM

From: Richard E. Dawes, Deputy Administrator, Technical Ctr West

Subject: Recommendation for Tower Resources Inc., Centennial Project,
Carbon County, Utah (Federal Lease Nos. SL-063058, SL-027304,
U-010581)

RE Dawes
10/23/81

I. Recommendation:

Pursuant to 30 CFR 741.21(a)(1), I recommend approval with stipulations of the Centennial Project permit application submitted by Tower Resources, Inc. The mining and reclamation plan, with the adoption of the stipulations included with this memorandum, will be in conformance with the applicable Federal regulations (30 CFR 741.12(b)), the requirements of the Utah State Program, and the Mineral Leasing Act, as amended. I am also recommending that you advise the Assistant Secretary, Energy and Minerals under 30 CFR 741.12(a), that the Tower Resources Inc., Centennial Project Mine Plan be approved. The permit term will be five years.

OSM and the State, in the course of the review, have identified some elements of the applicant's proposal which, in order to be in compliance with the approved State program and federal laws, require conditions. These conditions are attached to the proposed permit UT-0022 and are included as part of the preferred alternative of those alternatives analyzed. (See TEA on file in the OSM Region V Office, as part of the mining and reclamation plan, and in the office of the Utah Division of Oil, Gas and Mining.)

II. Background:

The proposed Centennial Project is made up of three underground coal mines (the Aberdeen, the Pinnacle and the Apex Mines) intended to mine federal coal. The Pinnacle Mine has been operating in the Gilson seam since October 3, 1980. The site is located approximately 10 miles north, northeast of Price, Utah, in Carbon County. Access to the mine plan area is provided by an existing graveled county road which has been upgraded and is maintained by Tower Resources, Inc. The proposed 5 year permit area is made up of approximately 440 acres of which about 25 acres will be disturbed by surface activities. (The lease area is made up of 2240). Approximately 13 surface acres have been disturbed to date, and about 12 additional acres will be disturbed after permit approval. The portal entries will be located in the Right Fork of Deadman Canyon. The underground method of coal extraction will utilize continuous miners, shuttle cars, and conveyor haulage. Coal will be hauled by 28 and 40 ton coal trucks to various sidings of the Denver Rio Grande Western Railroad. Over 50% of the coal is shipped overseas, with the remainder going to users in California and Montana. The proposed operation would recover approximately 29 million tons

at a maximum production rate of 1,200,000 tons per year over a 30 year life-of-mine.

A mining and reclamation plan was originally submitted by Centennial Coal Associates to the U.S.G.S. under the 211 regulations on May 27, 1976. This plan was to be reviewed and approved pending the completion of the Central Utah Regional Environmental Impact Statement. This document was completed in July of 1979. Prior to its completion, Tower Resources, Inc. (under its affiliated name of AMCA Coal Leasing, Inc.), submitted to the State of Utah its Mining and Reclamation Plan for the fee lease which was approved in September, 1980. The revised plan was reviewed for completeness by the U. S. Office of Surface Mining (OSM) and the Utah Division of Oil, Gas and Mining (D.O.G.M.) in 1981, and sections of the plan were returned to Tower Resources, Inc., for revision. Responses were received from the applicant until August, 1981. "Notice of Availability" of the complete mine plan was published in the Sun Advocate, Price, Utah on February 4, 1981.

Tower Resources, Inc.'s mining and reclamation plan was jointly reviewed by OSM and the Utah Division of Oil, Gas, and Mining (DOGM) under the approved Utah State Program and the Federal Lands program (30 CFR Chapter VII, subchapter D). The Mineral Leasing Act portion of the plan was also reviewed for compliance with the applicable portion of 30 CFR Part 211 (i.e., requirements and responsibilities of the Geological Survey under the Mineral Leasing Act). The Division and OSM jointly developed the stipulations which must be accepted by the applicant prior to issuance of a permit. These stipulations are hereby made an integral part of the Tower Resources, Inc. mining and reclamation plan.

The U. S. Geological Survey, the Bureau of Land Management, and the U. S. Fish and Wildlife Service have provided written concurrence and the State regulatory authority has provided a recommendation for approval. A copy of each letter of concurrence in our files is attached (Attachment B). The State Historic Preservation Officer verbally concurred with OSM's proposed compliance with 36 CFR Part 80 and written approval is forthcoming.

The technical and environmental assessment (TEA, EA) for this mine plan application was prepared by Region V and DOGM. This document, other documents prepared by DOGM, the company's application, and other correspondence developed during the completeness and technical reviews are part of the mining and reclamation plan file. A Notice of Availability of the TEA to be published in the local newspaper is enclosed as Attachment D. This notice states that a seven day public review period will commence at the date of publication.

My recommendation is based on the complete mining and reclamation plan files. As attested to in that document, I have determined that this action will not have a significant impact on the human environment. This mine, and the significant effects characteristic of the proposed mining and reclamation operations, have been addressed in the Department's Environmental Impact Statement entitled, "Development of Coal Resources in Central Utah," issued in July 1979.

The information in Tower Resources, Inc.'s mining and reclamation plan as well as other information documented in the recommendation package and made available to the applicant has been reviewed by my staff under the general direction and supervision of the Chief, Technical Analysis and Research Division and the Technical Project Officer. Based on that review, and as reflected in the attached recommendation package, I recommend that you find that Tower Resources, Inc.'s application affirmatively demonstrates that the findings required by Section 510 of the Act and 30 CFR 786.19 can be made. (See Findings, Attachment C). There is one exception. Surface disturbance will occur closer than 100 feet of a public (county) road. Section 522(e)(4) of the Act permits this if public notice has been given together with an opportunity for public hearing. Thereafter, the regulatory authority must make a written finding that the interests of the public and of the landowner will be protected if the variance is granted. 30 CFR 761.12(d)(4). While approval of the county authority was obtained (TEA, p. 14), no notice was given or hearing held and no written finding as required by 30 CFR 761.12(d)(4) was made. It is the policy of Utah not to follow these procedures for existing mines.

MEMORANDUM

To: Assistant Secretary, Energy and Minerals

From: Director, Office of Surface Mining

Subject: Recommendation for Approval of Tower Resources Mining and Reclamation Plan, Tower Resources, Inc., Carbon County, Utah (Federal Lease SL-027304, SL-063058, U-010581)

Pursuant to the Surface Mining Control and Reclamation Act (SMCRA) and the Mineral Leasing Act, as amended, I am advising you that OSM is prepared to approve a permit for the Tower Resources, Inc., Centennial Project. My decision to approve Tower Resources, Inc.'s application for a permit under the Federal Lands Program is based on the applicant's complete permit application with the attached stipulations, public participation, the review of the application by OSM and the State as required by 30 CFR Chapter VII, Subchapter D and the approved Utah State Program, and compliance with the National Environmental Policy Act. The Secretary may approve a mining plan for Federal lands under Sections 2(a), (2)(b), and (2)(a)(3) of the Mineral Leasing Act, as amended, if the proposed operation will be in compliance with all applicable laws and regulations.

A copy of the Technical Analysis and Environmental Impact Statement is on file in the Branch of Environmental Analysis of OSM's Washington Office.

I recommend that the mining plan be approved.

Attachment

I approve: _____
Assistant Secretary, Energy and Minerals

Date

CONCURRENCES

SURNAME	DATE								
<i>Reverman</i>	<i>10-22-81</i>	<i>Ed Davis</i>	<i>10/23/81</i>						

OFFICIAL FILE COPY

Attachment 2

TOWER RESOURCES
CENTENNIAL PROJECT
SEED LIST

STEEP SLOPES

Grasses

Rate (lbs PLS/acre)

Intermediate wheatgrass	2
Mountain brome	2
Bluebunch wheatgrass	2
Indian ricegrass	2
Fendler bluegrass	1
Slender wheatgrass	2

Forbs

Arrowleaf balsamroot	1
Utah sweetvetch	1
American vetch	1
Nuttall lomatium	1
Eaton penstemon	1

Alternatives: Blue flax

Shrubs

Golden currant	1
Birchleaf mountain mahogany	1
Fringed sagebrush	1
Saskatoon serviceberry	1
Mountain snowberry	1
Curlleaf mountain mahogany	1

Alternatives: Gamble oak and Antelope bitterbrush

(Continued)

Attachment 2
TOWER RESOURCES
CENTENNIAL PROJECT
SEED LIST (Continued)

Page 2

DRAINAGE AREAS

Grasses

Rate (lbs PLS/acre)

Orchardgrass	1
Mountain brome	1
Reed canarygrass	1
Kentucky bluegrass	1
Timothy	1
<i>Slender wheatgrass</i>	1

Alternatives: Slender wheatgrass and Smooth brome

Forbs

Eaton penstemon	1
Western yarrow	1
Black medick	1
Strawberry clover	1
Cinquefoil	1

Alternatives: Alsike clover and Dragon checkermallow

Shrubs and Trees

Black common chokecherry	1
Box elder	1
Gamble oak	1
Woods rose	1
Skunkbush sumac	1
Narrowleaf cottonwood	1

Alternatives: Mountain snowberry, Golden currant and
Saskatoon serviceberry

NOTE: If an alternative species is selected, the same seeding rate should be used for replacement species as was indicated for original species.

ATTACHMENT B

CHRONOLOGY OF EVENTS

Tower Resources Inc.
Application for Mining and Reclamation Plan

(Chronology) The application was originally submitted to OSM on January 15, 1981. The plan was found complete on September 28, 1981. The applicant provided additional information on June 5, 1981 and August 25, 1981. Public Notice was given on four consecutive weeks in the Sun-Advocate beginning February 4, 1981 and the comment and request for conference period expired on March 25, 1981. Notice of receipt of a complete plan was provided to State and local jurisdictions and the public through the newspaper notice.

The mine has been previously addressed in U.S. Geological Survey Final Environmental Impact Statement (EIS) titled Development of Coal Resources in Central Utah and issued in 1979.

FINDINGS

Tower Resources
Centennial Project

Application for Mining and Reclamation Plan

1. The plan and the permit application is accurate and complete and all requirements of the Surface Mining Control and Reclamation Act (the "Act"), the approved Utah State Program, and the Federal Lands Program, including the Mineral Leasing Act, have been complied with (786.19(a)). A complete topsoil handling plan has not been submitted but surface disturbance will be minimal and stipulations require a plan to be approved by UDOGM and OSM before any additional surface disturbance proceeds. See Chronology, state's letter of concurrence and OSM's letter of recommendation in this package.)

2. The applicant has demonstrated that surface coal mining and reclamation operations, as required by the Act, the approved State Program, and the Federal Lands Program, can be feasibly accomplished under the mining and reclamation operations plan contained in the application. Revegetation has been proven successful on coal mined lands in several test areas located throughout the State of Utah. The Energy Minerals Rehabilitation Inventory Analysis (EMRIA) study, a joint effort by the USDA and EPA provides documentation of successful revegetation on these areas and should be referred to for more specific information (786.19(b)). (See the State's letter of concurrence and OSM's letter of recommendation).

3. The assessment of the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance has been made by OSM and the Utah Division of Oil, Gas and Mining, and the operations proposed under the application have been designed to prevent damage to the hydrologic balance in associated off-site areas. In the opinion of the technical staff of OSM, the statements in Section 2.5 of the plan that there will be no significant impact on the hydrologic system resulting from Tower Resources proposed mining operation are true. This conclusion was arrived at based upon the following:

a. The mining company's proposed monitoring plan and the commitment made in Section 3.6 (Pg. #41 MRP. Adden. A) to rectify any adversities that become apparent.

b. The lack of significant ground water (quantity) availability in the affected strata, for such an impact to occur. Likewise, surface water flow is ephemeral.

c. The contrastingly low contribution of mine related sources of pollution that is likely to occur from underground coal mining in an area having saline spoils and characteristically low downward percolation.

d. The predominant water use in the adjacent area is for livestock, which can tolerate the saline levels that will likely occur.

4. The proposed permit area is:

- a. Not included within an area designated unsuitable for underground coal mining operations (See MRP p. 19).
 - b. Not within an area under study for designating lands unsuitable for underground coal mining operations. (See MRP, p. 19).
 - c. Not on any lands subject to the prohibitions or limitations of 30 CFR 761.11(a) (national parks, etc.), 761.11(f) (public buildings, etc.), and 761.11(g) (cemeteries). (See MRP, p. 19).
 - d. Not within 300 feet of any occupied dwelling. (See MRP, p. 19)
5. OSM's issuance of a permit and the Secretarial decision on the Mineral Leasing Act plan are in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800) (Verbal concurrence has been obtained and a letter from SHPO is forthcoming.) (See T.A. p. 16)
6. The applicant has the legal right to enter and begin underground activities in the permit area (Federal leases SL-027304, SL-063058 and U-010581 (786.19(f))).
7. The applicant has submitted proof showing that prior violations of applicable law and regulations have been corrected (786.19(g)). (See MRP, p. 13)
8. The applicant has submitted proof that all fees for the Abandoned Mine Reclamation Fund have been paid (786.19(h)). (Confirmed by OSM staff Oct. 15 Bill Barryman)
9. The applicant does not control and has not controlled mining operations with a demonstrated pattern of willful violations of the Act of such nature, duration, and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act (786.19(i)). (See MRP p. 13).
10. Underground coal mining and reclamation operations to be performed under the permit will not be inconsistent with other such operations anticipated to be performed in areas adjacent to the proposed permit area (see Land Use Section of TEA) (786.19(j)). The mine plan does not contain a subsidence mitigation plan because no renewable resources will be affected by the proposed mining operation. The primary renewable resource at this site is ground water. There are no ground water resources in the area above the coal seam. Ground water does occur 100 ft. below the coal seam but this resource will not be affected by the proposed mining operation.
11. Within 30 days of permit approval, the applicant shall submit a detailed analysis to the Regulatory Authority showing the proposed bond amount, including all assumptions used in the analysis. Within 60 days of bond approval by the Regulatory Authority, the bond must be posted. The bond will be made payable to both the United States and the State of Utah.
12. The applicant has obtained a negative declaration with respect to prime farmlands (786.19(l)). (See MRP, p. 98)
13. With respect to the 5-year permit area a negative alluvial valley floor determination has been made. No alluvial valley floors outside the permit area will be adversely affected by the proposed operation. (See MRP, p. 100)

14. The proposed postmining land use of the permit area has been approved by the Utah Division of Oil, Gas and Mining and OSM (786.19(m)). (TEA p. 13)

15. The Utah Division of Oil, Gas and Mining and OSM have made all specific approvals required by the Act, the approved Utah State Program and the Federal Lands Program (786.19(n)).

16. The proposed operation will not affect the continued existence of endangered and threatened species or result in the destruction or adverse modification of their critical habitats (786.19(o)). Although golden eagle nests are found on the lease area, buffer zones have been established around them and no surface activities will take place in these buffer zones without prior written approval from the U. S. Fish and Wildlife Service.

17. All procedures for public participation required by the Act, the approved Utah State program, the Federal Lands Program, and Council on Environmental Quality regulations (40 CFR Part 1500 et seq.) have been complied with (741.21(a)(2)(ii)). (See chronology and Letter of Recommendation).

18. The applicant has complied with all other requirements of applicable Federal laws. (See Letter of Concurrence).

Prior to the permit taking effect, the applicant must forward a letter stating its compliance with the special stipulations in the permit.

22 Meriman
Technical Project Officer

Richard E. Dawes
Deputy Administrator
Technical Center West

U. S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

NOTICE OF AVAILABILITY
OF A TECHNICAL AND ENVIRONMENTAL ASSESSMENT ON
THE COAL MINING AND RECLAMATION PLAN FOR
TOWER RESOURCES, INC.
CENTENNIAL PROJECT
CARBON COUNTY, UTAH
FEDERAL LEASE #SL-027304, SL-063058, U-010581

Pursuant to Sections 1501.4(c) and 1506.6 of Title 40, Code of Federal Regulations, notice is hereby given that the Western Technical Service Center of Surface Mining Reclamation and Enforcement (OSM) has made available a Technical and Environmental Assessment on the mining plan for the Centennial Project, Carbon County, Utah (See 30 CFR 741.12(b) for the definition of "mining plan"). OSM's recommendation, approval of the plan and permit application, is in accordance with Sections 510 and 523 of the Surface Mining Control and Reclamation Act (SMCRA). OSM's analysis shows that no significant environmental impacts would occur if the applicant's proposal is approved. A brief description of the location follows:

Applicant:	Tower Resources, Inc.
Mine Name:	Centennial Project
State:	Utah
County:	Carbon

Portions of Sections 7, 8, 9, T. 13 S., R. 11 E.

Office of Surface Mining Reference No. UT-0022

Name and Address of Applicant: Tower Resources

P. O. Box 1027

Price, Utah 84501

The mine is an existing underground mine operating on fee coal (State permit ACT-007-019 and is located 10 miles north, northeast of Price in Carbon County, Utah. The mine began operations on October 3, 1980.

The proposed mine plan area will cover approximately 2240 acres, with approximately 25 acres being disturbed for surface activities. The 5 year permit area is 440 acres. A full production rate of 1,200,000 tons per year would be achieved by the fourth year of mining and the life-of-the mine is estimated to be 30 years. Coal is trucked to various sidings of the Denver and Rio Grande Western Railroad. Most of the coal is shipped to industrial users, with over 50% going overseas and the rest to Montana and California.


The purpose of this notice is to inform the public of the availability of the Technical and Environmental Assessment and that the OSM, Technical Administrator, Technical Center West has made a "Finding of No Significant Impact" with respect to the Department's proposed action. Any person having an interest that may be adversely affected by OSM's environmental impact finding should address their concerns, in writing to the Deputy Administrator, Technical Center West, Region V at the address given below. Comments on the technical and environmental assessment and/or finding must be received within 7 days of the date of this notice.

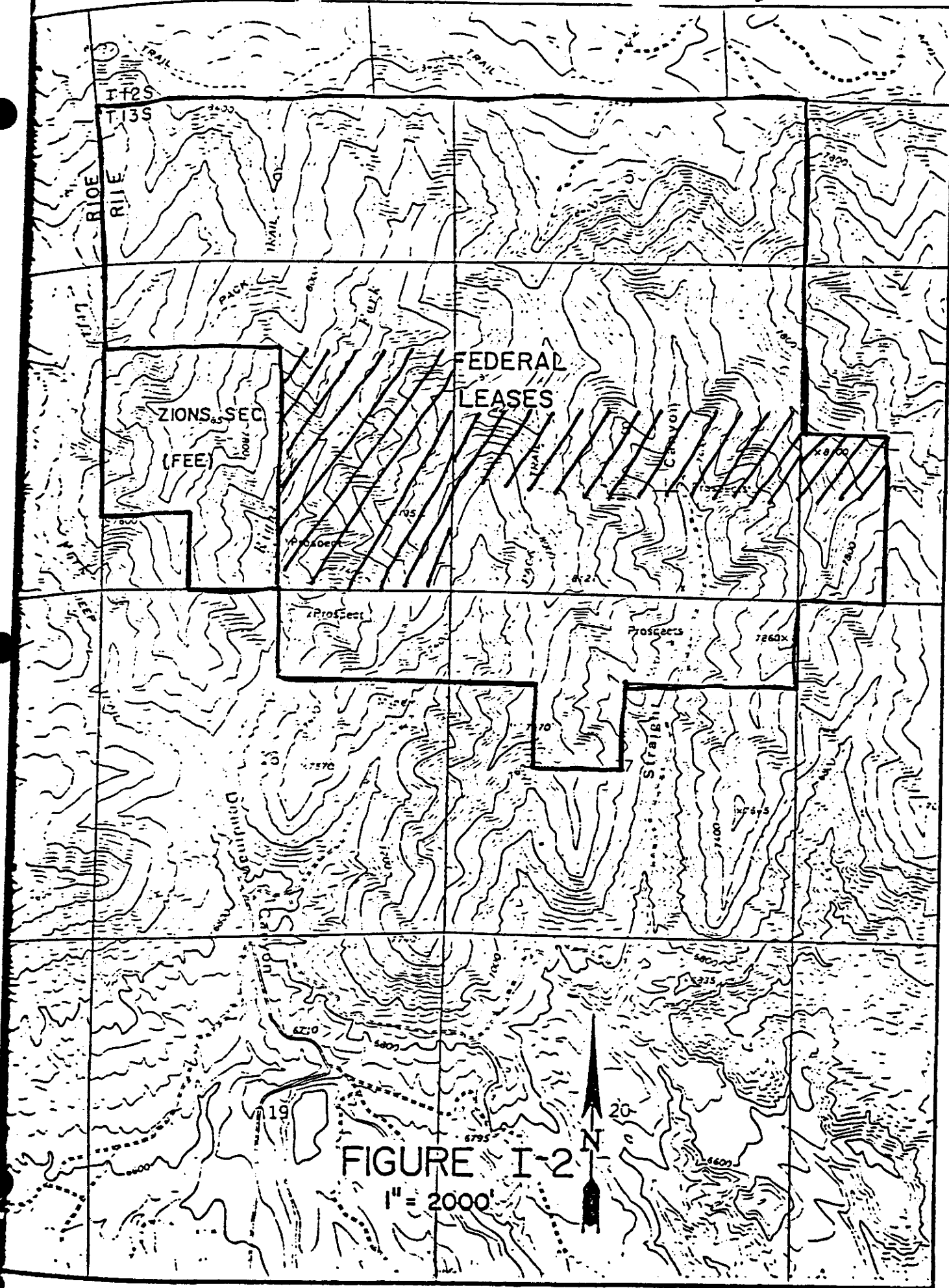
The Secretary of the Interior or his delegate will make a decision as to the Department's action on this mining plan after review of the technical and environmental assessment and other documents. Pursuant to 30 CFR 741.17, the Director Office of Surface Mining, will make a decision on the permit after the Secretary's decision on the mining plan. The Secretary's and Director's decisions will be based on the recommendations of OSM, the U. S. Geological Survey, the Bureau of Land Management, the State of Utah and any public comments received within 7 days after publication of this notice in the Federal Register.

Notice of Availability of the mining and reclamation plan on the Centennial Project was published in the Sun-Advocate on February 4, 1981.

ADDRESSES: The technical and environmental assessment and other documents on the Centennial Project are available on request from the Office of Surface Mining, Region V. Any comments on these documents should be submitted to the Deputy Administrator, Region V, Office of Surface Mining, Brooks Towers, 1020 Fifteenth Street, Denver, Colorado 80202.

FOR FURTHER INFORMATION CONTACT: Jodie Merriman or Richard E. Dawes, Office of Surface Mining, Region V, Brooks Towers, 1020 Fifteenth Street, Denver, Colorado 80202.

Lease Area — 5 year permit area 



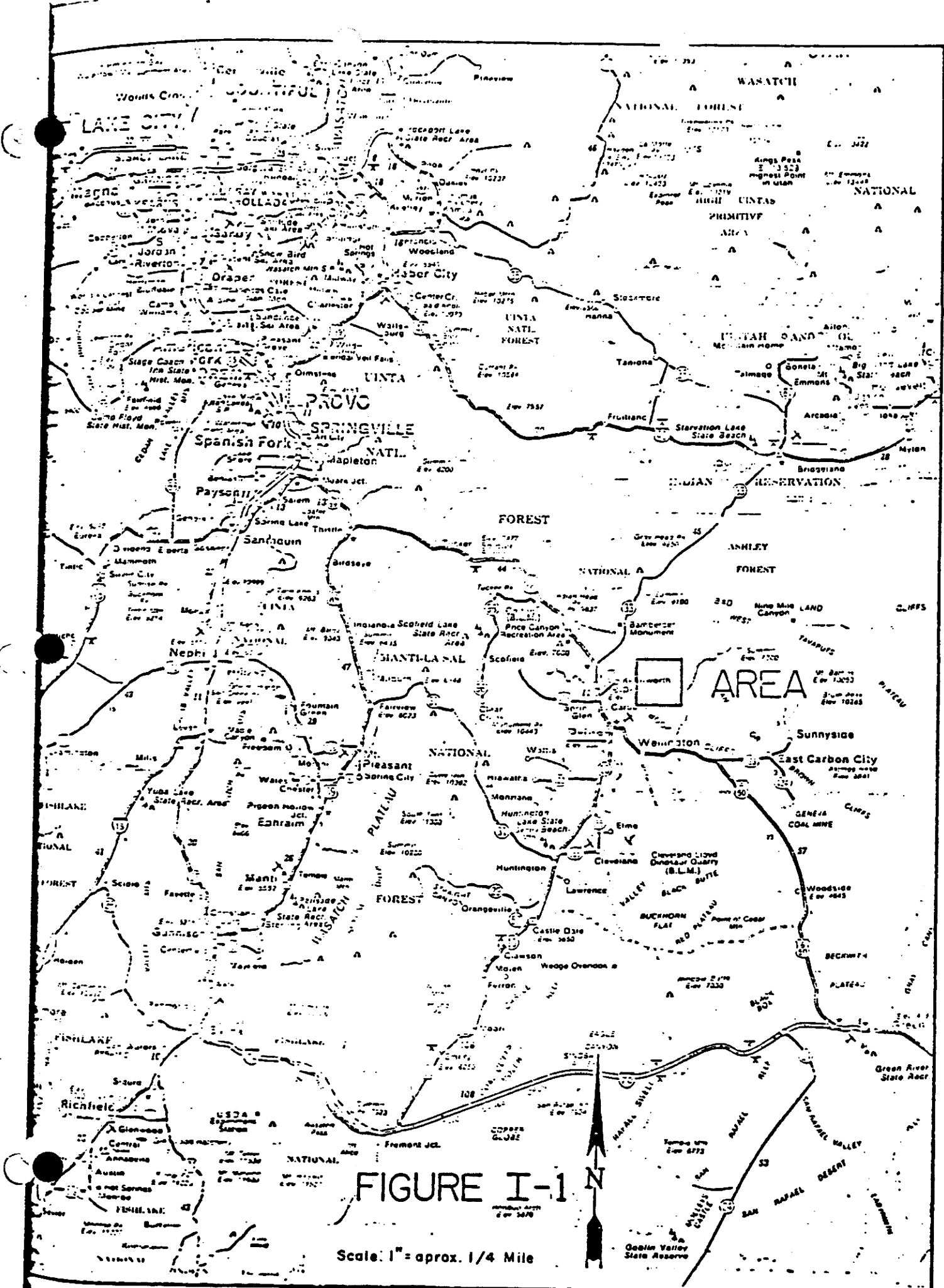


FIGURE I-1

Scale: 1" = approx. 1/4 Mile

COAL MINE DATA FORM

OSN ID: Utah 0022

Mine Name Centennial Project State Utah County Carbon
 Operator Tower Resources, Inc. Suballinity of Utah
 Mining Method: Underground Federal Lease Nos. SL-027104, SL-061058, U-010581
 (Legal on attached map)

Ownership Data:

Surface Resources (Acres)

Exsting Permit Area	Proposed Permit Area	Total Life of Mine Area	Total Percent of Mine Area
Federal	440	1150	
State	0	0	
Private	0	1090	
TOTAL			

Coal Ownership (Acres)

Federal	440	2040	
State	0	0	
Private	0	200	
TOTAL			

Coal Resources Data

Total Reserves
 Total Recoverable Reserves

Private
 50,000,000 tons
 29,000,000 tons

TOTAL

Reserve Data

Seam
 Aberdeen
 Gilson
 Lower Sunnyside

Thickness

4 ft. - 12 ft.
 2 ft. - 7.5 ft.
 2 ft. - 6 ft.

Total Reserve

50,000,000

Recoverable

29,000,000 tons

Percent Recovery

58%

Mine Life

approx. 30 yrs.

Market

overseas, Montana & California

Transportation

Rail w/in U.S.



United States Department of the Interior

IN REPLY REFER TO

3400
(U-066)

BUREAU OF LAND MANAGEMENT
Moab District
P. O. Box 970
Moab, Utah 84532

DRAFT

Memorandum

To: Regional Director, Office of Surface Mining, Denver, Colorado

From: District Manager, Moab

Subject: Mine Plan Review - Tower Resources

Tower Resources' Mining and Reclamation Plan (Addendums A, B and one dated August 25, 1981) has been reviewed and an on-site inspection has been conducted. The plan has been determined to be complete in regards to the protection of Federal resources not granted to the lessee and post-mining land use. The plan is recommended for approval conditioned on the following stipulations. Additional mitigating measures may be developed upon review of exploration plans or mine plan addendums.

1. A predictive sample inventory of cultural resources shall be made by the lessee if subsidence is shown to have a negative impact on cultural resources.

2. Those Federal lands included in buffer zones established by the Fish and Wildlife Service around golden eagle nests will be closed to surface occupancy with the exception of activities related to exploration, subsidence monitoring or ventilation. Exploration activities will not be allowed during the period between February 15 and June 15. Surface construction for ventilation shafts and related access roads will not be accomplished during the aforementioned time period. Routine maintenance of ventilation fans may be accomplished yearlong.

3. Speed of vehicular traffic associated with the mine project should be reduced to no more than 40 miles per hour on the unpaved portion of the access road (critical deer winter range) during the period November 1 through May 15 to minimize deer fatalities. The use of the Swareflex Wildlife Reflector Warning System (Strieter Corp.) is also recommended along the same road to further minimize deer fatalities.

4. Areas disturbed during construction of surface facilities that are not utilized by the mining operation shall be reclaimed and seeded. These areas shall be seeded as specified in the enclosure with exceptions requiring concurrence of the Surface Management Agency



Seeding method shall be by broadcasting and mulching. Seeding shall be accomplished before the first growing season following completion of construction work and either in late fall or early spring.

5. Efforts shall be made to mitigate visual impacts of surface facilities by imitating the color, texture, line and form of the natural landscape to the greatest extent practical as determined through consultations by the lessee with the Surface Management Agency.

The Federal coal leases have been found acceptable for mining (43 CFR 3461.4-2).

Enclosure:
Seed List



United States Department of the Interior

FISH AND WILDLIFE SERVICE
AREA OFFICE COLORADO-UTAH
1311 FEDERAL BUILDING
125 SOUTH STATE STREET
SALT LAKE CITY, UTAH 84138

IN REPLY REFER TO:

1 October 1981

MEMORANDUM

TO: Regional Director
Office of Surface Mining
Denver, Colorado

FROM: Acting Area Manager, Area 5
Fish and Wildlife Service
Salt Lake City, Utah

SUBJECT: Mining and Reclamation Plan For
Centennial Project, Carbon County, Utah

This agency's views concerning the subject mining and reclamation plan are contained in our previous correspondence to you and in the 25 September 1981 memorandum from the Bureau of Land Management (BLM) District Manager at Moab. However, we differ with recommendation number two of BLM's memorandum in one respect.

BLM stated that Federal lands included in buffer zones established by the Fish and Wildlife Service around golden eagle nests will be closed to surface occupancy with the exception of activities related to exploration, subsidence monitoring or ventilation. We recommend instead that no mining-related activities of any kind be allowed within these buffer zones without prior written approval of this agency. We will be responsive and will immediately review any requests concerning proposed works within these buffer zones. You may refer to our 20 July 1981 memorandum for the locations of these zones.

Based on the above-mentioned criteria this agency recommends approval of the subject mining and reclamation plan.

Donald F. Lindberg

cc: BLM District Manager at Moab
BLM Utah State Director
U.S. Geological Survey
Area Mining Supervisor, SLC
Utah Division of Oil, Gas, and Mining, SLC
Utah Division of Wildlife Resources
Director
Utah Division of Wildlife Resources,
Southeast Regional Officer

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Office of the District Mining Supervisor
Conservation Division
2042 Administration Building
1745 West 1700 South
Salt Lake City, Utah 84104-3805

IN REPLY REFER TO:

SL-027304

UT0022

September 10, 1981

Mr. James W. Smith
Utah State Oil, Gas, and Mining
1550 West North Temple
Salt Lake City, Utah 84116

Dear Mr. Smith:

We have reviewed the material submitted with the letter dated August 27, 1981, to Mr. Mary Loworth from Mr. David Shaver of Tower Resources, Inc., relative to the Tower Shale surface facilities. The facilities as shown conform with the 30 CFR 211 mining plans as enclosed.

Sincerely yours,

Jackson W. Doornick
District Mining Supervisor

cc: Denver
MORRIS (1)
Tower Resources
Salt, Denver ✓





United States
Department of
Agriculture

Soil
Conservation
Service

P. O. Box 11350
Salt Lake City, UT 84147

June 16, 1981


Sam Quigley
Power Resources, Incorporated
Price, Utah 84501

Dear Mr. Quigley:

A review of the soils on your companies Dead Man Canyon properties as described on the soil survey furnished you in May, 1980, indicates no prime farmland within the area.

Copies of the report are on file in the Soil Conservation Service State Office in Salt Lake City and Field Office in Price, Utah.

Sincerely,



THERON B. HUTCHINGS
State Soil Scientist

cc:
Gary D. Moreau, DC, Price, UT

Received

JUN 19 1981

Power Resources Inc.

SCOTT M. MATHESON
Governor



AMPLE A. REYNOLDS
Executive Director
NATURAL RESOURCES

CLEON B. FEIGHT
Director

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
Salt Lake City, Utah 84116
(801) 533-5771

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September 28, 1981

Mr. Mike Glasson
Tower Resources, Inc.
P. O. Box 1027
Price, Utah 84501

RE: Determination of
Apparent Completeness
Centennial Project
Tower Resources, Inc.
ACT/007/019
Carbon County

Dear Mr. Glasson:

The Utah Division of Oil, Gas and Mining has completed a cursory review of the Mining and Reclamation Plan (MRP) and amendments submitted by Tower Resources Inc., for their Centennial Project. This Division has determined the plan to be apparently complete. In compliance with Section UMC 786.11(b) and (c) of the Utah Coal Mining Reclamation Act (UCA, Section 40-10-1 et seq), notice is hereby given to all appropriate agencies having jurisdiction over or an interest in the area of the proposed (or existing) operations that a complete plan is available for public review for this existing operation.

The project is located approximately 10 miles north, northeast of Price, Utah, in Carbon County, Township 13 South, Range 11 East. The projected minesite will have a disturbed area of 24.25 acres.

The proposed Mining and Reclamation Plan (MRP) involves underground multiple seam mining, lower Sunnyside, Gilson and Aberdeen seams, on approximately 2,240 acres controlled by Tower Resources, Inc. Production scheduling projects an increase from 200,000 tons the first year to full production of about 1,200,000 tons in the fourth and fifth years. The life of the mine is estimated to be 30-40 years. The term of the mining and reclamation permit is five years.

Mr. Mike Glasson
ACT/007/019
September 28, 1981
Page two

Approximate location (Section, Township and Range):

Sections 5, 6, 7, 8, 9, 17 and 18 of T. 13 S., R. 11 E.

Federal Coal Leases: SL-027304, SL-063058 and U-010581

The Division of Oil, Gas and Mining will now prepare a technical assessment (TA) to determine whether the proposed plan meets all the criteria of the Permanent Program Performance Standards according to the requirements of UCA, Section 40-10-1 et seq.

Upon completion of the TA for said plan, a decision will be made as to approval or disapproval of the permit application. No decision will be taken by the Director for a minimum period of 30 days after submission of this Notice of Availability to the appropriate agencies. This plan is available for public review at the Utah Division of Oil, Gas and Mining, 1588 West North Temple, Salt Lake City, Utah 84116-3156.

Comments on the proposed MRP may be addressed to the Director of this office: Cleon B. Feight, Director, Utah Division of Oil, Gas and Mining, 1588 West North Temple, Salt Lake City, Utah 84116-3156.

For further information, please contact: Mr. James W. Smith, Jr., Coordinator of Mined Land Development, at the address above.

Sincerely,



JAMES W. SMITH, JR.
COORDINATOR OF MINED
LAND DEVELOPMENT

JWS/GLH/btm



United States Department of the Interior

UT0022

SL-027304

SL-063058

U-010581

GEOLOGICAL SURVEY

Office of the District Mining Supervisor
Conservation Division
2040 Administration Building
1745 West 1700 South
Salt Lake City, Utah 84104

April 30, 1981

Memorandum

To: Region Director, Office of Surface Mining, Denver

From: District Mining Supervisor, Salt Lake City, Utah

Subject: Conditional Approval to Extend Pinnacle Mine, Main
Entry System on Fee Lands into Federal Leases
SL-027304, SL-063058, and U-010581

In your letter dated March 17, 1981, to Tower Resources you referred to a letter by Tower dated March 5, 1981, wherein they requested conditional approval for current mining operations in the Gilson seam to proceed into Federal leases.

Tower representatives Sam Quigley and Mike Glasson visited our office this morning and informed us that in conversations with your office, conditional approval to enter the Federal lands depended on the concurrence of the Geological Survey.

We have visited the Pinnacle mine and can verify that continued and orderly development of the mine requires that the Main Entry system, now developing in the Gilson seam on fee lands, be extended eastward into the Federal leases within the next 60 days.

We have also reviewed the Tower Resources mine plan which you mailed to this office on January 23, 1981. We reported to you on the adequacy of the plan on March 18, 1981. One of our primary concerns with the plan was Tower's proposal not to columnize the Gilson working with the overlying Lower Sunnyside seam workings and the underlying Aberdeen seam workings. Mr. Quigley assured Mr. McKean and myself that he too was concerned with columnization since it is an accepted basic engineering principle and that he would promptly realign the Gilson seam workings and submit a new plan to provide columnization of the works in the mine so far as possible so that barriers would be superimposed over barriers, main development entries would be superimposed over main development entries, and panels would be superimposed over panels.

In order to provide orderly development of the Pinnacle mine and to permit the company to sustain current levels of production we recommend that a conditional approval be given Tower to develop the Main East entries eastward according to the plan proposed in its March 5, 1981, letter into the Federal leases. The existing surface facilities will be used and no additional surface impacts will occur. This recommendation is conditioned on Mr. Quigley's agreement to superimpose similar development in the upper seam

(Lower Sunnyside) and lower seam (Aberdeen) on a continuation of the present alignment of the Gilson seam Main East entries. A conditional approval under these conditions will not adversely affect future development in any part of the mine and in our opinion would be compatible with maximum economic recovery of all of the minable coal in the Federal leases which contain the majority of the reserves in the mining unit.

If you require additional information from this office, please notify me.

Jackson W. Moffitt
Jackson W. Moffitt



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Moab District
P. O. Box 970
Moab, Utah 84532

UT0022

IN REPLY REFER TO

3400
(U-066)

MAY 04 1981

Memorandum

To: Regional Director, Office of Surface Mining, Denver, Colorado

From: District Manager, Moab

Subject: Mine Plan Review - Tower Resources

Tower Resources Mining and Reclamation Plan (including Addendum A) has been reviewed. Although numerous references were made to additional portal areas, access roads and a preparation plant, our review for completeness has been limited to the operation of the existing Pinnacle Mine. Our comments on the plan in general follow:

1. The plan states that none of the historic sites identified in the project area would impede development (Page 104). The archaeological report by Hawkins and Seward (Exhibit IV-E) recommends that a cabin in Straight Canyon (42 Cb 180) be avoided.
2. On page 101, the plan states that deer hunting is the only recreational use. Other uses would include hiking, picnicking and ORV recreation.
3. A fish and wildlife plan was not developed as such was not "deemed practicable" (page 97). The significant impact of the coal haul road on wintering deer was only mentioned in passing without an attempt to develop mitigating measures for the term of mine life. These impacts to critical deer winter range and their mitigation must be addressed in the mine plan prior to approval. Mitigation measures are to be developed by the operator through joint consultation and coordination with Utah DWR and BLM.
4. The right-of-way application for the proposed coal haul road on Plate I has been verbally disapproved by the BLM due to its location across critical deer winter range.

The following stipulations are recommended at this time for additional portal areas, access roads and associated facilities. Additional stipulations will be provided after receipt of plan addendums that specifically address planned facilities.

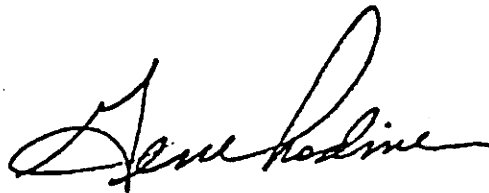


1. Prior to approval of mine plan addendums relating to additional surface disturbances, the operator will provide a wildlife field survey to the Authorized Officer that includes identification of nesting sites for raptors and migratory birds of high Federal interest, habitat of resident fish and wildlife species of high interest to the State and eagle concentration areas. The wildlife biologist conducting the survey and survey methods will be acceptable to the Authorized Officer. Mitigating measures to protect identified wildlife species will be developed by the operator through joint consultation and coordination with Utah DWR and BLM. Mitigating measures may include restrictions on location of surface facilities, limitations on surface disturbances and habitat manipulation to upgrade adjacent wildlife range.

2. Surface disturbances and facilities planned for the project area shall be subject to Visual Resource Management considerations. Efforts shall be made to mitigate visual impacts by imitating the form, line, color and texture of the natural landscape to the greatest extent practical as determined by the Authorized Officer.

3. Prior to surface disturbing activities, the lessee shall have had an archaeologist, acceptable to the Authorized Officer, conduct an archaeological survey of the area to be disturbed. The Authorized Officer retains the prerogative to require the relocation of proposed facilities to protect archaeological values located on leased lands, or the operator may be required to have sites salvaged by a qualified archaeologist prior to proceeding with operations. If sites are uncovered by his operations, the operator shall not proceed further until additional clearance is granted by the Authorized Officer.

In reviewing the mine plan, the unsuitability criteria were applied to the Federal leases included in the permit area and also to lands under lease modification application by Tower Resources. These lands were found suitable for mining.



cc:
Utah State Director (U-930)



United States Department of the Interior

GEOLOGICAL SURVEY

Office of the District Mining Supervisor
Conservation Division
2040 Administration Building
1745 West 1700 South
Salt Lake City, Utah 84104

UT0022
SL-027304

June 23, 1981

Memorandum

To: Regional Director, OSM, Denver

From: District Mining Supervisor, USGS-CD,
Salt Lake City

Subject: Tower Resources, Inc., Pinnacle Mine,
Carbon County, Utah, Response to Apparent
Completeness Review

The one volume subject submittal forwarded from your office with letter dated June 17, 1981, has been reviewed by our engineering department. We have one comment as follows:

1. On pages 6 and 9 it states that no waste rock will leave the mine and that any rock waste resulting from ventilation structures will be disposed of underground. Total disposal of waste underground may not be practical, particularly if mining problems involving rock work are encountered. Total mandated disposal of rock underground could sterilize areas of recoverable coal and it would be lost. We cannot agree to this. Certainly rock disposal areas in the vicinity are available.

The USGS-CD's approval is required for underground disposal of substantial waste involving mines on Federal leases. Generally, an onsite inspection and discussion is made to minimize the amount of coal that may be lost because of underground rock (waste) storage.

The mine plan should not prohibit removing waste from the mine and a statement should be included in the narrative of the plan that will involve the USGS-CD in the disposal of waste and waste rock underground.

Jackson W. Moffitt
Jackson W. Moffitt



SCOTT M. MATHESON
Governor

TEMPLE A. REYNOLDS
Executive Director,
NATURAL RESOURCES

CLEON B. FEIGHT
Director



STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
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September 30, 1981

Mr. Robert Hagen, Acting Director
Office of Surface Mining, Region V
Brooks Towers
1020 Fifteenth Street
Denver, Colorado 80202

RE: Technical Analysis
Recommendation for
Approval With
Stipulations
Tower Resources, Inc.
Centennial Project
ACT/007/019
Carbon County, Utah

Dear Mr. Hagen:

The Utah Division of Oil, Gas and Mining has completed the Technical Analysis (TA) of the Mining and Reclamation Plan for Tower Resources, Inc.'s Centennial Project. The Division recommends granting approval with stipulations under Utah's permanent coal regulatory program. Approval is recommended for a five-year term, upon Tower Resources, Inc.'s acceptance of the stipulations outlined in the TA and submission of the reclamation bond to the regulatory authority.

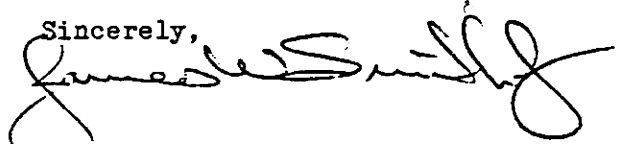
Enclosed please find the Division of Oil, Gas and Mining's TA with stipulations and a brief Findings Document for your review and response.

I hope this information will enable the Office of Surface Mining to finalize its Environmental Assessment and Decision Document to be forwarded to Washington, D. C., for approval.

Mr. Robert Hagen, Acting Director
ACT/007/019
September 30, 1981
Page two

If you have any questions or need any additional information, please
contact myself or Gilbert Hunt of my staff.

Sincerely,



JAMES W. SMITH, JR.
COORDINATOR OF MINED
LAND DEVELOPMENT

Enclosures

cc: Mike Glasson, Tower

JWS/GLH/btm